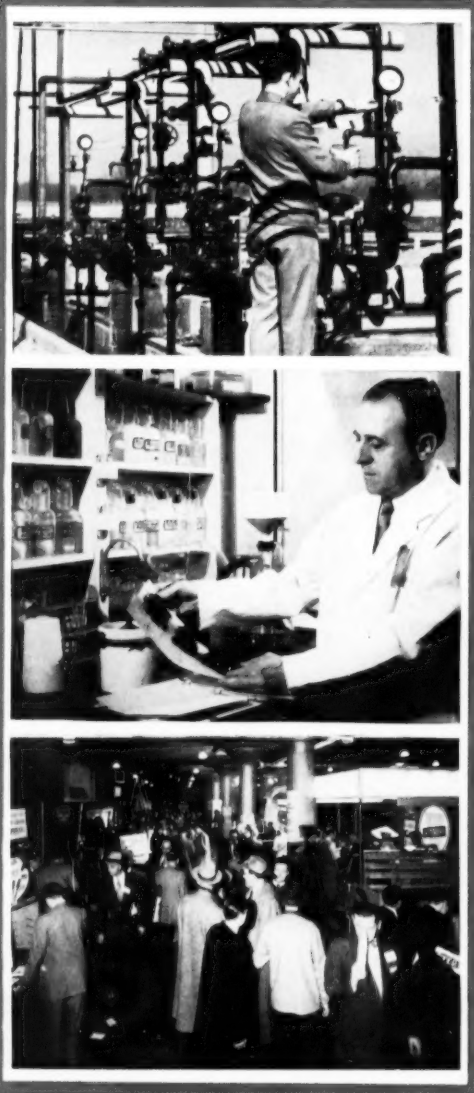
Chemical Week

February 13, 1954 Price 35 cents



Rubber slated for sideline role as makers put steam behind chemicals . . . . . p. 20

If you sell to bakeries, learn to bake. Leavening agent salesmen do stint in kitchen . . p. 28

Harmon Color's Vesce: His trick to conquer hard-to-dye synthetics—put the pigment right inside the fiber . . . . . p. 42

Plant men meet, swap ideas on maintenance . . . . . p. 56

Small firms showed the way. Now big ones latch on to oil-based paints that don't smell . . . p. 77

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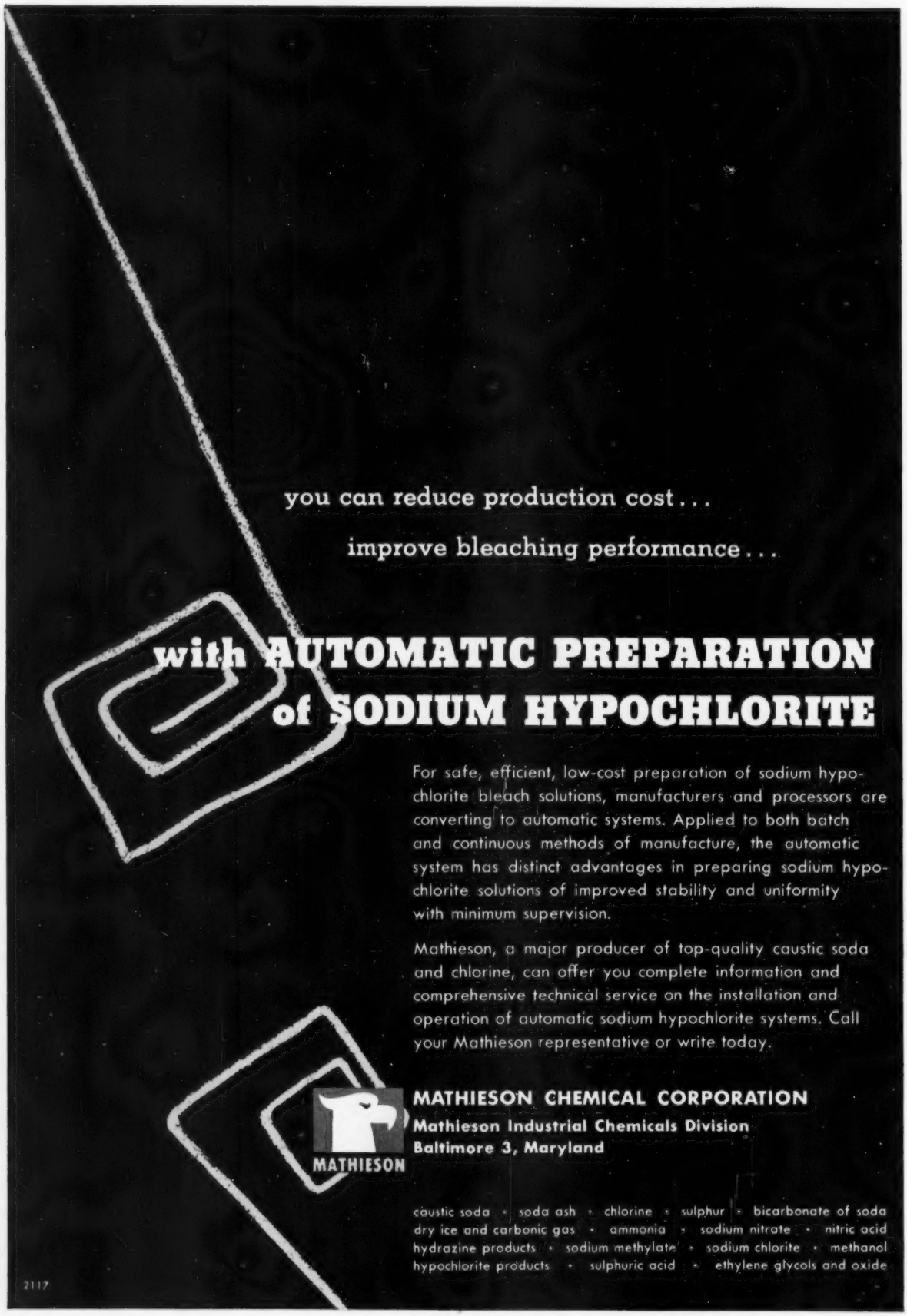
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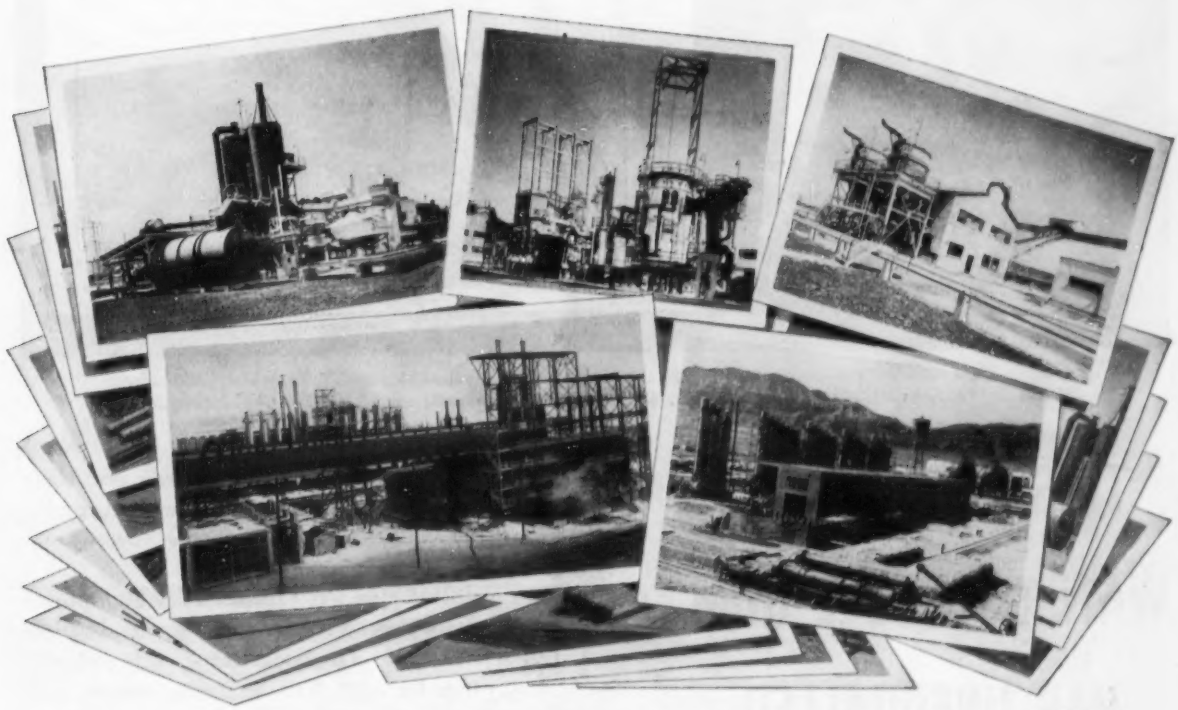

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CC-880

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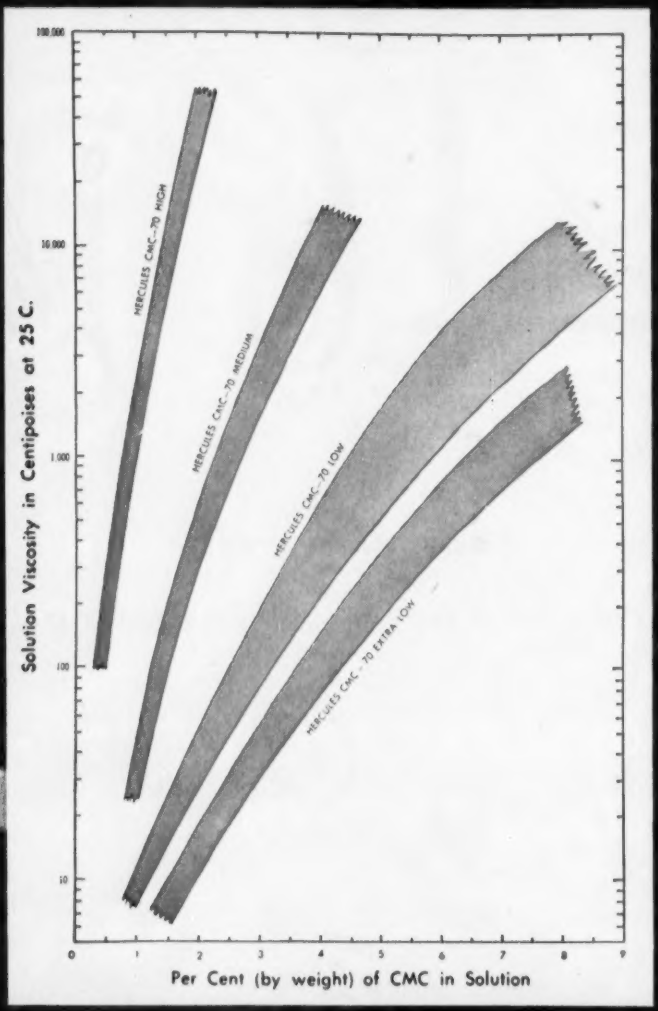

Curves show the viscosity-concentration ranges at 25°C for four types of Hercules CMC: CMC-70 Extra Low, CMC-70 Low, CMC-70 Medium and CMC-70 High. Photograph at left shows one thickening effect possible with a CMC-water solution.

THIS ECONOMICAL WATER-SOLUBLE GUM HAS UNEQUALLED VISCOSITY RANGE

With cellulose gum (Purified Hercules® CMC) now available in ten different types, this water-soluble colloid meets all requirements for a thickening agent. Some indication of viscosity concentrations possible is given in the chart above.

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Cellulose Products Department
HERCULES POWDER COMPANY
INCORPORATED
992 Market Street, Wilmington 99, Delaware

CM54-2

Chemical Week

Volume 74 **February 13, 1954** Number 7

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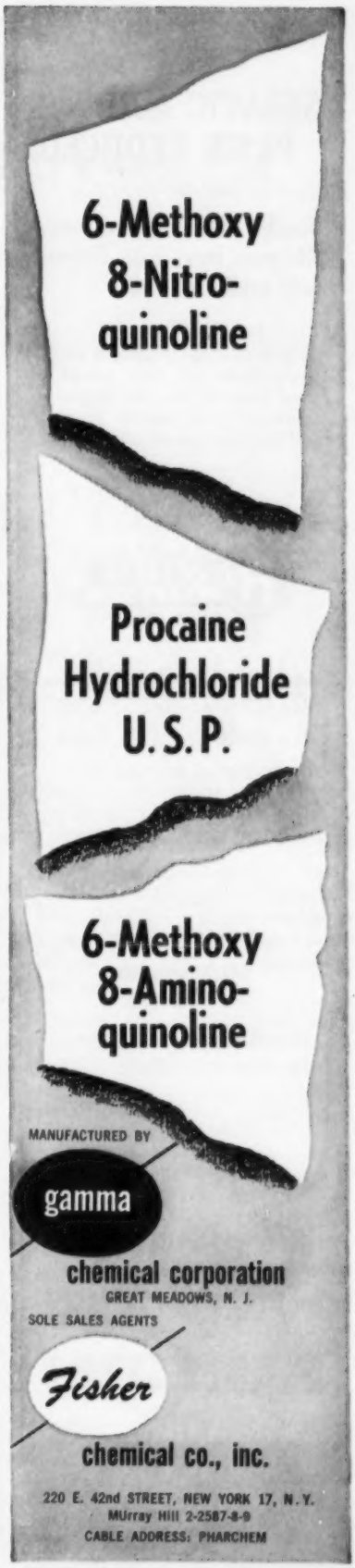

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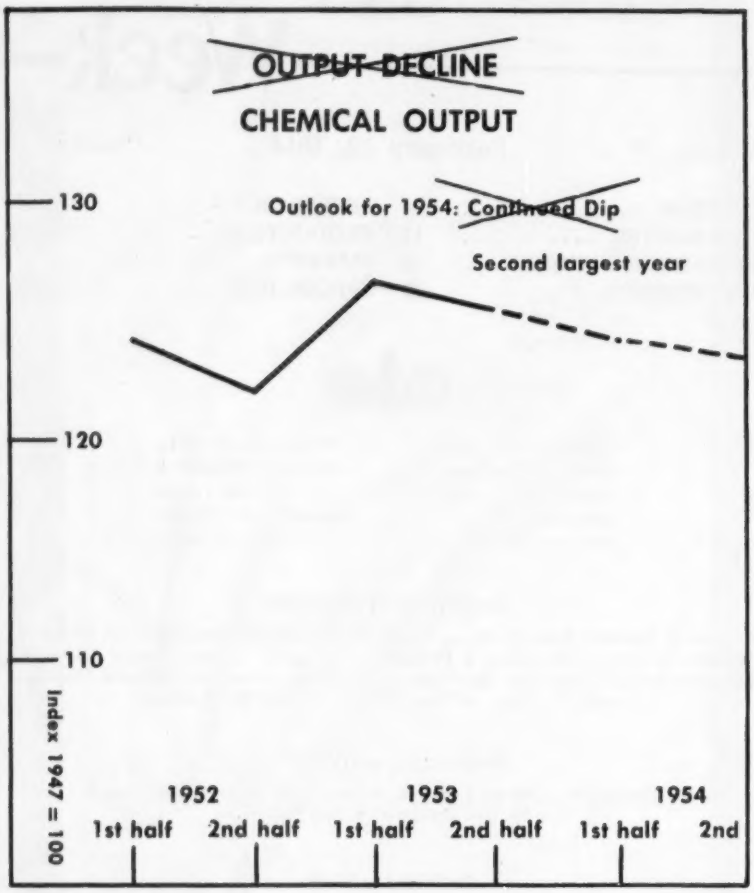
OPINION . . . . .



How You Look at It

To the Editor: Publishers have a sacred obligation to our nation. The power of the printed word . . . should be used for good. . . .

Facts can be presented to stimulate optimism or to snowball pessimism. May we suggest the enclosed optimistic alternate for your graph of chemical output (*Jan. 16*). . . .

James S. Mulholland, Jr.
Co-Publisher
Electronic Design
New York, N.Y.

For Reader Mulholland's suggested revision, see cut.—Ed.

Capital "O," Underlined

To the Editor: Your news article on the Puget Sound area (*Jan. 16*) is good. . . . This area has its pessimists for whom I feel sorry. I prefer to remain an Optimist—with a capital "O" and underlined.

It may take courage on the part of managements of the major companies to keep the area in an expanding program . . . but certainly courage is more common than fear. . . .

It is my hope that you will turn the spotlight on this area frequently. . . .

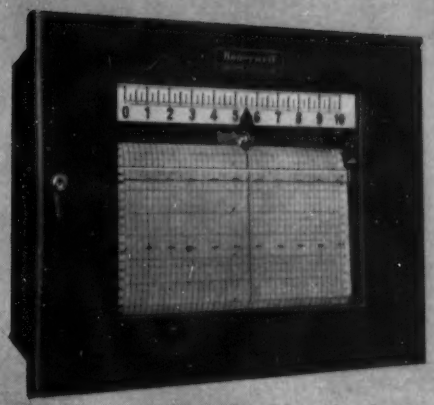
T. E. Moffitt
Western Manager
Hooker Electrochemical Co.
Tacoma, Wash.

Foresees Fast Progress

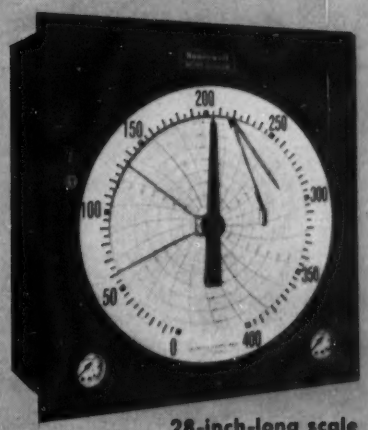
To the Editor: I studied with intense interest your news article on the growth and prospects of the chemical industry in the Puget Sound area (*Jan. 16*). The story is factual, informative, and . . . accurate. You did

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

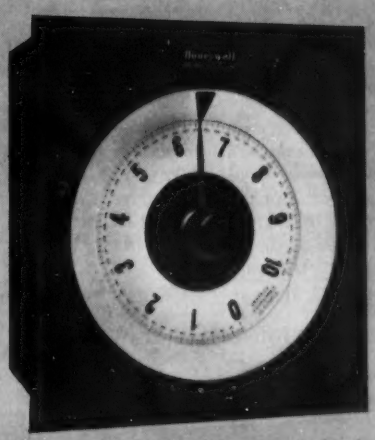
Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



11-inch-wide strip chart



28-inch-long scale



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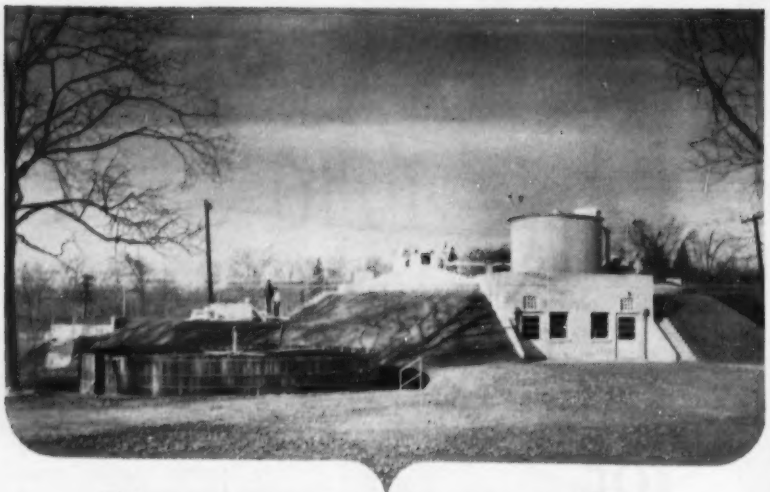
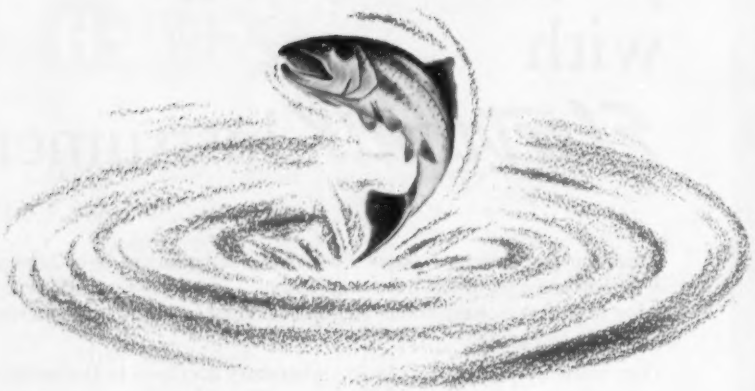


How many parts per million
will kill a fish?



The treatment and disposal of industrial wastes has a lot to do with the health of fish — and people.

A plant in New Jersey had the problem of reducing pollution from 3,000 *ppm* in raw waste to 33 *ppm* in the final effluent. In planning the installation shown here, the consulting engineers called on Dorr for equipment recommendations. The resulting installation — involving equalization, predigestion, Biofiltration and slow sand filtration — is consistently providing the exact results for which it was planned.

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OPINION. . . . . .

a creditable job in accumulating the facts and presenting them in an interesting way. . . .

One question often asked me is the prospects of having natural gas piped into this area. The applications of two pipeline companies are now before the Federal Power Commission, which is expected to render its decision sometime this spring. Gas may be available sometime in 1955 and bring to us an entirely new resource.

In some cases it will supplement native resources, which otherwise could not be used. For example, there are plans for a fertilizer plant, which depends on the use of natural gas as a source of hydrogen. A glass company is planning to establish a plant in the Northwest to supply this area as soon as gas is available for heat. Much of the gas may be used for house heating and to supplant hydroelectric power. But it may also be used as a chemical raw material. . . .

There is also the possibility of utilizing the Northwest's large supplies of sub-bituminous coals. That is probably a long-range rather than a short-range prospect. The oil reserves of the U.S. are gradually diminishing and the day is coming when gasoline will be produced from coal, air and water as Germany did. . . .

Washington's estimated reserves of bituminous coal are 11.2 billion tons and of sub-bituminous coal 52.4 billion tons. With the exhaustion of oil reserves and advance in the chemical processes, our sub-bituminous coal will play an increasingly important role in the economy of this region.

It is entirely possible that progress will be faster than we now expect. . . .

You may want to review a report, *"The Chemical Utilization of the Sub-bituminous Coals of Washington,"* by Lorentz A. Conradi, which was published by the Engineering Experiment Station of the University of Washington, for further details. . . .

ARTHUR B. LANGLIE
Governor
State of Washington

Addendum on F

TO THE EDITOR: . . . Your CW Report on the Drug Industry is, all in all, extremely well done and one that, I feel, will be read with great interest by many. . . .

You mention, incidentally, Compound F. You might also mention that Compound F is hydrocortisone and that, in addition to fewer side reactions being reported, it is approximately 50% more potent than corti-

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OPINION . . . . . .

sone. It is, too, topically effective where cortisone is not. . . .

W. ALAN WRIGHT
Medical Director
Pfizer Laboratories
Brooklyn, N.Y.

Mirror Image

TO THE EDITOR: . . . Perhaps your photographs (*Jan. 16, p. 84*) were reversed for artistic reasons, but when an illustration shows words which are a mirror image of the original, then an impression of falseness is given to the entire illustration. . . .

Especially in a technical publication, don't you agree that accuracy should take precedence over artistic arrangement?

GEORGE SELDEN
President
Upco Co.
Cleveland, Ohio

Rarely, very rarely, do we "flop" negatives—and then purely for aesthetic reasons. Henceforth, in the light of the mail with which we have been deluged, we'll do it very, very rarely. —ED.

DATES AHEAD

Federal Wholesale Druggists' Assn., mid-year meeting, Statler hotel, New York, Feb. 25-27.

Drug, Chemical and Allied Trade Section, New York Board of Trade, annual dinner, Waldorf-Astoria hotel, New York, March 4.

Chemical Institute of Canada, division of organic chemistry's third symposium, McGill Univ., Montreal, March 8-9.

American Chemical Society, 125th national meeting, Muehlebach hotel and municipal auditorium, Kansas City, Mo., March 24-April 1.

American Pharmaceutical Manufacturers Assn., annual meeting, Boca Raton Club, Boca Raton, Fla., March 29-31.

National Farm Chemurgic Council, Inc., annual conference, Peabody hotel, Memphis, Tenn., April 5-7.

Assn. of Consulting Chemists and Chemical Engineers, symposium and banquet, Belmont Plaza hotel, New York, April 27.

Air-Pollution Control Assn., annual meeting, Patten hotel, Chattanooga, Tenn., May 3-5.

Forest Products Research Society, national meeting, Grand Rapids, Mich., May 5-7.

Flavoring Extract Manufacturers' Assn., annual convention, Biltmore hotel, New York, May 16-19.

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ethylene oxide glycol ethanolamines
ammonia nitric acid ammonium nitrate urea

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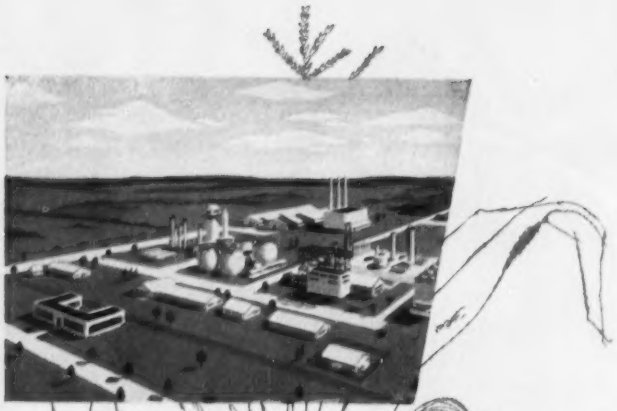

from this growing 'plant'

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This young plant is growing fast. It will begin to bear fruit this fall. And the nation's industry and agriculture will reap the harvest — a harvest of high quality nitrogen products that will contribute to increased comfort and convenience for us all.

This new plant, located in Memphis, Tennessee, is designed to produce 72,000 tons of nitrogen annually, in the form of urea and anhydrous ammonia. It represents a reliable new source for these important chemicals.

Already, urea and ammonia occupy strategic positions in American industrial production — for both civilian consumption and defense. Advancing technology will increase the demands upon the nation's supplies as new fibers, resins, petroleum derivatives, propellants and pharmaceuticals are created. In agriculture, too, more and more urea and ammonia will be needed each year to raise the capacity of our soils for sustained high-level crop production.

Watch this plant grow — and be ready to reap *your* share of the harvest. A free 20-page booklet "Introducing Grace Chemical Company" tells the story in detail. Write for your copy.

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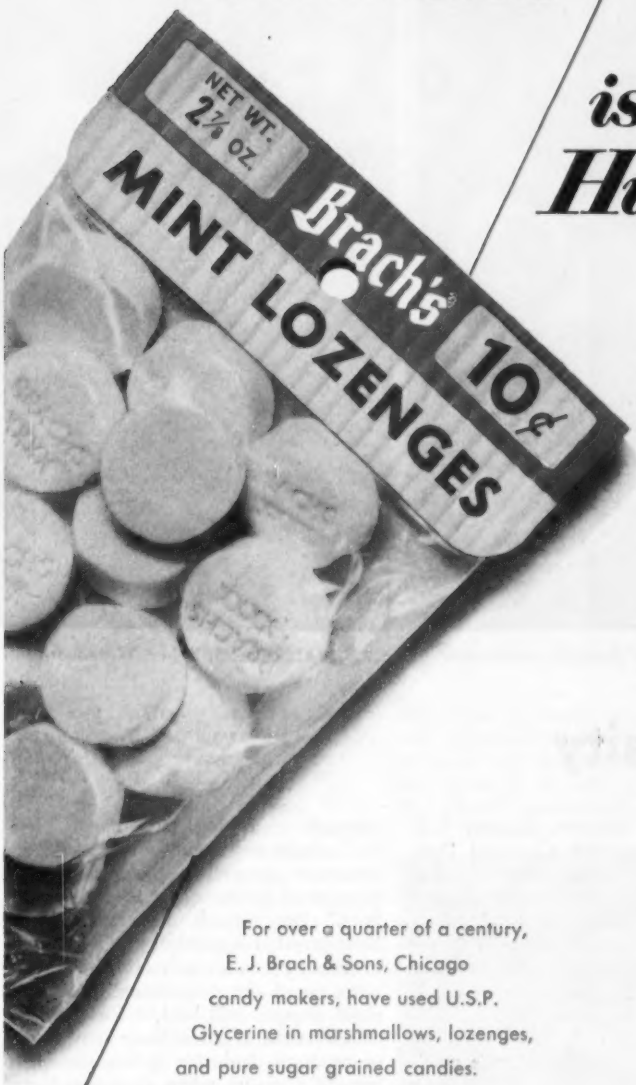

For over a quarter of a century, E. J. Brach & Sons, Chicago candy makers, have used U.S.P. Glycerine in marshmallows, lozenges, and pure sugar grained candies. Glycerine's ability to retain moisture lengthens the shelf life of Brach candies . . . keeps them fresh and delicious for much longer periods.

Keeping foods fresh by its ability to retain moisture is only one element of Glycerine's value to food manufacturers. In candy, for example, Glycerine acts not only as a humectant but also lends smoothness to mixtures, helps to assure more uniform distribution of flavorings, and contributes to palatability.

In compounding flavoring preparations, Glycerine often acts as a solvent, and at the same time adds body to the product. Glycerine is used—as a plasticizer—in the manufacture of meat casings, both animal- and cellulose-type. Glycerine is also used as a plasticizer in many food wrapping materials, such as cellophane and vegetable parchment.

In dozens of other food applications, Glycerine's unique range of properties and freedom from toxicity make it an outstanding favorite. The free booklet, "Glycerine . . . Preferred for Product Conditioning," contains helpful data on Glycerine properties and applications. For your copy, write Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

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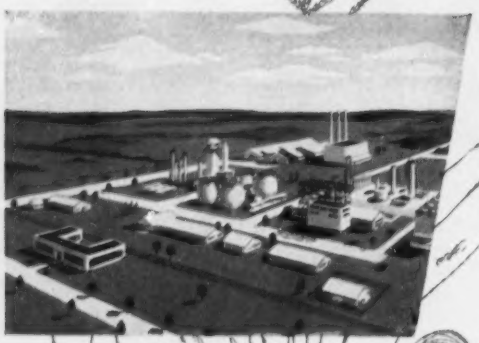

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nation's industry and agricul
high quality nitrogen produc
and convenience for us all.

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since 1928 / Glycerine is the Humectant

Keeping foods fresh by its ability to retain moisture is only one element of Glycerine's value to food manufacturers. In candy, for example, Glycerine acts not only as a humectant but also lends smoothness to mixtures, helps to assure more uniform distribution of flavorings, and contributes to palatability.

In compounding flavoring preparations, Glycerine often acts as a solvent, and at the same time adds body to the product. Glycerine is used—as a plasticizer—in the manufacture of meat casings, both animal- and cellulose-type. Glycerine is also used as a plasticizer in many food wrapping materials, such as cellophane and vegetable parchment.

In dozens of other food applications, Glycerine's unique range of properties and freedom from toxicity make it an outstanding favorite. The free booklet, "Glycerine . . . Preferred for Product Conditioning," contains helpful data on Glycerine properties and applications. For your copy, write Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

GES

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and pure sugar grained candies.
Glycerine's ability to retain moisture
lengthens the shelf life of Brach candies...
keeps them fresh and delicious
for much longer periods.

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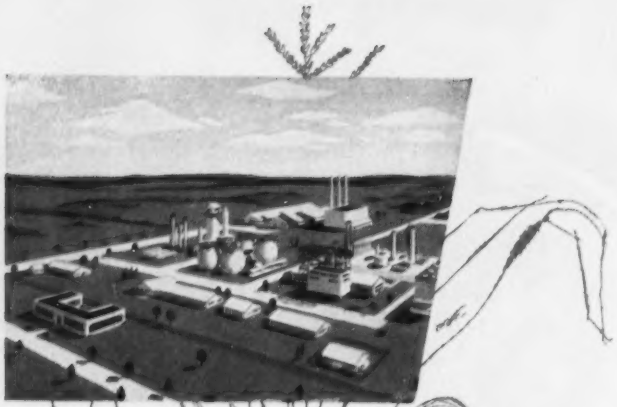

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This new plant, located in Memphis, Tennessee, is designed to produce 72,000 tons of nitrogen annually, in the form of urea and anhydrous ammonia. It represents a reliable new source for these important chemicals.

Already, urea and ammonia occupy strategic positions in American industrial production — for both civilian consumption and defense. Advancing technology will increase the demands upon the nation's supplies as new fibers, resins, petroleum derivatives, propellants and pharmaceuticals are created. In agriculture, too, more and more urea and ammonia will be needed each year to raise the capacity of our soils for sustained high-level crop production.

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Keeping foods fresh by its ability to retain moisture is only one element of Glycerine's value to food manufacturers. In candy, for example, Glycerine acts not only as a humectant but also lends smoothness to mixtures, helps to assure more uniform distribution of flavorings, and contributes to palatability.

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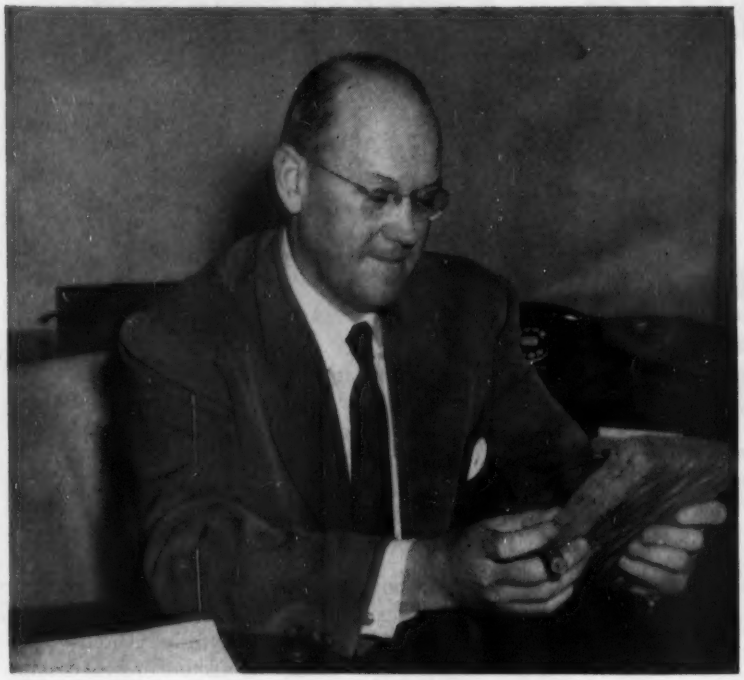


GOODRICH'S HOOVER: Has an edge productionwise in chemical activity now.

GENERAL'S BIG 3: Robert Wittenberg . . .

Spawned of Necessity

MUCH like the tail that wags the dog, the importance of chemical production to rubber manufacturers is rapidly becoming a barometer of industrial success. This year, for the rubber industry as a whole, chemicals should account for almost 30% of gross sales, by 1960 will more than double annual sales value of standard rubber products. Proof of the top priority now given to chemical expansion: each of the four major Akron rubber companies (Goodrich, Goodyear, Firestone, and General Tire) is scrambling for position in the impending sale of the government's synthetic rubber plants—a move calculated not only to afford them a high degree of integration but also to drop them into the heart of the chemical picture.

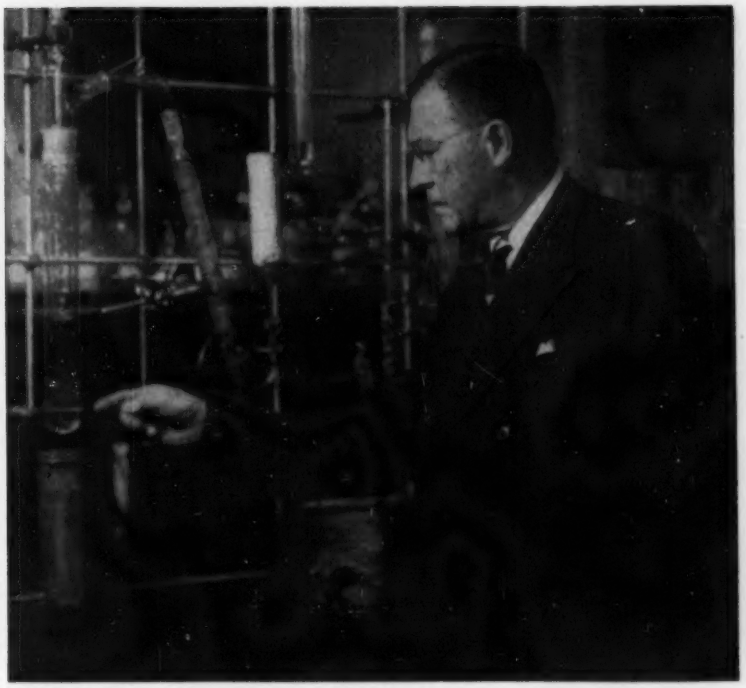
In effect, the venture of the rubber companies into chemical production came about for sound economic reasons—the result of the close relationship of rubber technology and organic chemistry. Goodrich and U.S. Rubber were early converts, slid into chemicals around the turn of the century. "That," admits one rubber company executive, "gives them an edge today, productionwise." Both companies boast healthy chemical divisions: U.S. Rubber's Naugatuck Chemical Division is turning out products valued at over $100 million annually (almost 20% of U.S. Rubber's total sales); Goodrich's Chemical Division is reportedly crowding a $150-million sales record—the bulk of its proceeds coming from the production of plastics.

Branching Out: Naugatuck's products today number something over 300, include sulfuric acid, fungicides, resins, TNT for artillery shells. Goodrich, bounding on from the opening of its $6-million vinyl chloride monomer plant at Calvert City, Ky., late last year, is looking forward to the opening of an $8.5-million acrylonitrile plant (also at Calvert City) within the next 12 months to lift profit margins even higher. Further: Goodrich chemical representatives, impressed with the import of their recent plunge into soil conditioner raw materials and insecticides, expect to dip into production of a new synthetic fiber of the di-nitrile type soon—"provided early research reports bear reverification."

Firestone's reasons for getting into the chemical field also links back to research in rubber technology. "So far," admits one chemical official, "the company appears on the surface to have stuck pretty close to the vinyl field." But though $6 million has been invested in new plastics facilities in recent years, it's no secret that "the outcome of the government's rubber plant disposal will lead to Firestone's development of an entirely new line of products. Industry spokesmen are frankly guessing when they peg the percentage of sales contributed by plastics and chemicals last year at 12% (of some $1 billion sales), but the estimate's fairly well confirmed by Robert S. Firestone's admission that "plastics are now the company's third most important product line."

Goodyear Tire and Rubber Co. has just dignified its chemical division (and incidentally recognized its importance) by making it a separate division of the company. Reason for the move, says R. P. Dinsmore (vice-president in charge of Goodyear's research and development program) was to tighten the company's over-all expansion policies and consolidate chemical development. Acquisition of a synthetic rubber plant or two would be a plum for immediate expansion,

. . . M. G. O'Neil, William O'Neil confer.



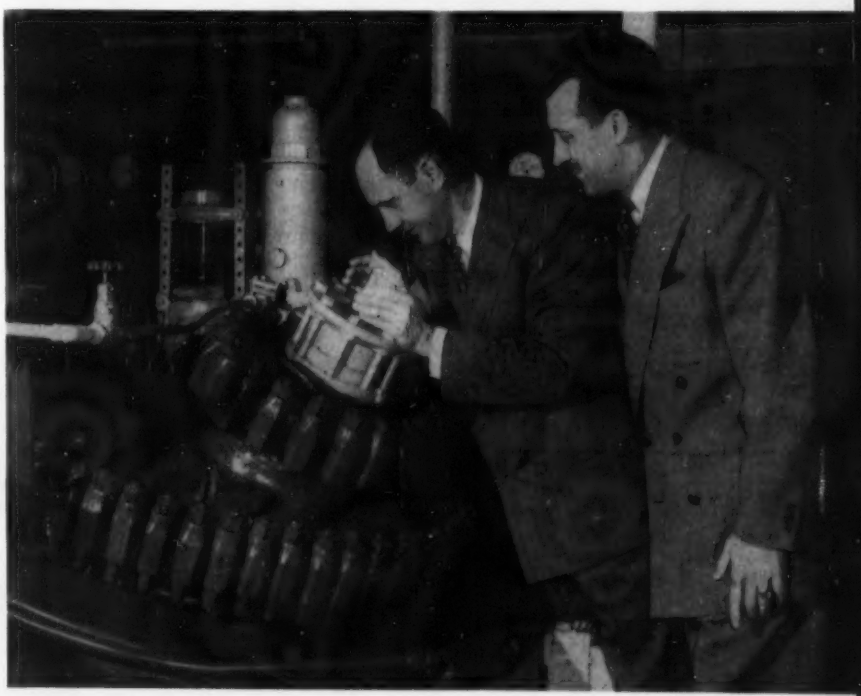
GOODYEAR'S DINSMORE: Contemplates a $1-million expansion this year.

but Dinsmore frowns on jumping into the project of petrochemical production "solely as a source of raw materials."

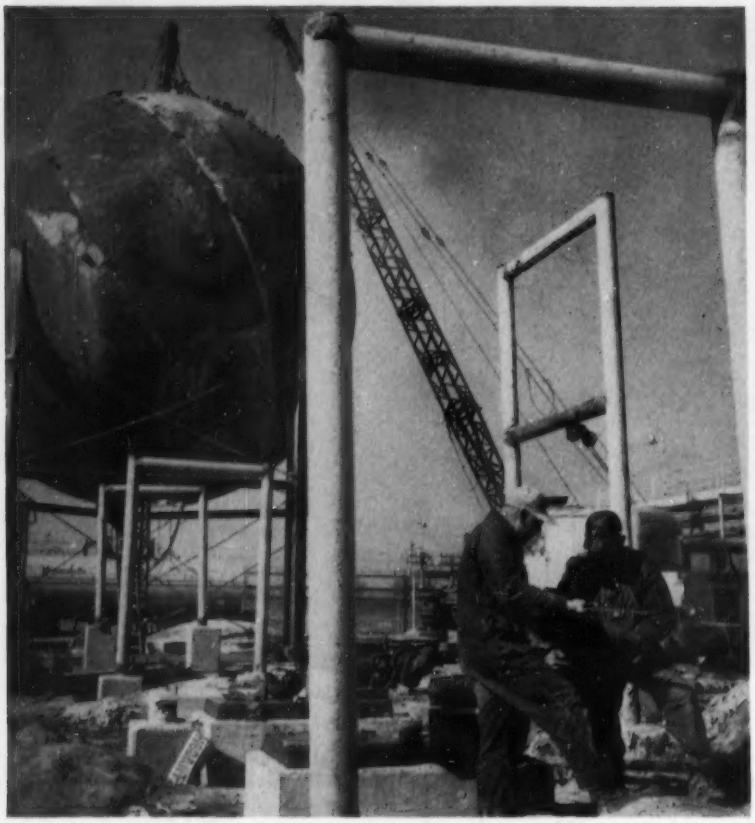
For the nonce, Goodyear will "constrain itself to broaden its chemical product lines by adding high-impact molding resins, an all-purpose PVC resin, and a dry-blend PVC resin." Vinyl resins for rigid applications are being explored, and the use of vinyls as plastisols and organizols is expected to grow. The company contemplates plowing over $1 million into expansion of chemical production this year, primarily in PVC operations and butadiene-styrene products.

Goodyear's oft-reported work with polyesters for use in film, plasticizers and plastics "may lead it to become more concerned with raw material supplies," but integration on a large scale is not currently on the books. "As far as we're concerned," says Dinsmore, "chemical production is becoming an increasingly strong factor in corporate planning." Percentage of profits in chemicals (around 10%) is a good selling point in comparison with rubber profits (around 3-4%). Further: "chemical activity is a good diversification for the rubber industry —dovetails nicely because it doesn't follow the seasonal ups and downs of rubber."

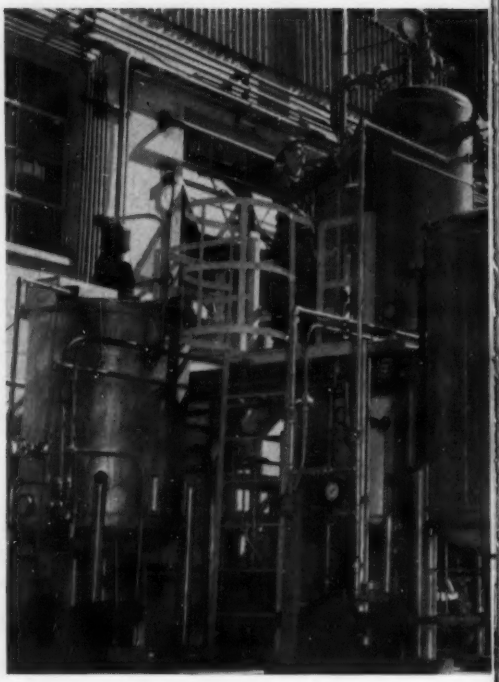
General Tire & Rubber Co., most recent major rubber firm to make an entry into chemicals, is possibly the most spectacular of the group. The company only started producing vinyl film products in 1950 (at Jeanette, Pa.). In 1951, a chemical division was formed to manufacture basic chemicals; in May '52, the division really became a going concern when production of specialty chemicals started at Mogadore, O.



FIRESTONE'S DUO: Roger Firestone and Ernest Handley . . . digging in.



SOLID VENTURE: Goodrich's Calvert City vinyl chloride monomer plant . . . now in.



FIRST BET: General's Mogadore, O. . . .

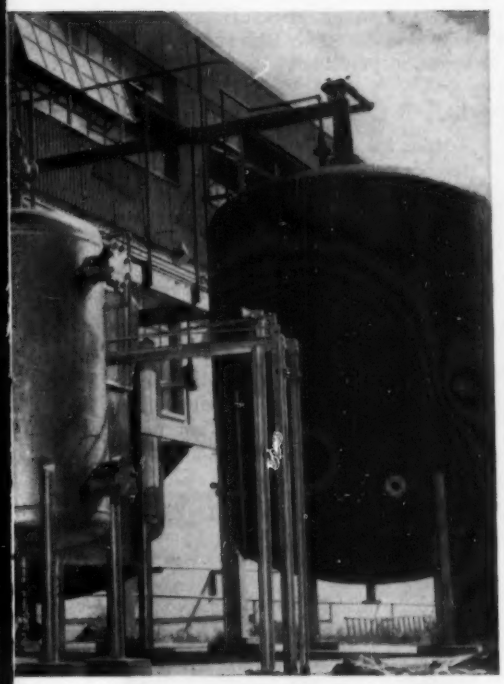
Initial products at Mogadore covered a wide range, included polyester resins for classified military use, special purpose rubber cements, a base material for fungicides, a high styrene resin. But by last summer, the company's decision to break into the chemical scene was really evident. Result: initial construction work on a plant at Ashtabula, O. (cost: $6 million) to turn out PVC. Production should start by 1955, and, says Bob Wittenberg (general manager, chemicals), within five years production at Mogadore will equal that currently planned at Ashtabula.

Almost overlooked, in comparison with the more grandiose plans: initial production of a chemical for use by the paint industry this year, contemplation of production of an internal-type plasticizer for vinyl resins.

Wholeheartedly backing General's late (but determined) break into chemicals are its stockholders, who voted a $35-million preferred stock issue some months back—virtually a blank check to broaden the company's chemical and plastics base, and allow for purchase of a synthetic rubber plant. Now under way: negotiations for purchase of two plastics plants.

"If any proof were needed of the monetary results of General's turn to chemicals," says William O'Neil, free-wheeling president, "we could point out that last year the plastics and chemicals divisions accounted for about 3% of the company's $200 million sales—and are expected to triple that percentage this year."

EXPANDING: Goodyear's Niagara Falls PVC and rubber chemicals units . . . due to add additional butadiene-styrene products.



. . . plant, a token of what's to come.

It all adds up to a major policy change among top rubber men in the U.S. Where some years back they were battling for tire sales on a nationwide scale, today the battle's turned into a scuffle to see who can get the edge in the chemical race. It's still too soon to tell who'll come out on top, but there's no doubt that U.S. rubber companies have jumped into chemicals solidly—and with both feet.

Power Pursuit

A hydroelectric project that might bring new opportunity to U.S. and Canadian chemical and electrochemical companies has been cleared by the U.S. Court of Appeals at Washington, and the Eisenhower Administration hopes construction can begin by summer.

Legality of the St. Lawrence River power project has been pursued hotly through Federal Power Commission hearings and through arguments before the appeals court, and now the three opposition parties may apply to the U. S. Supreme Court.

This $600-million project, championed by New York's Gov. Thomas E. Dewey, would greatly increase the power supply in upper New York state and along the north side of the river from Montreal, Que., to Kingston, Ont. It isn't tied to the St. Lawrence seaway project, but the dams in the power project would be needed in building the seaway.

NEW YORK'S DEWEY: More kilowatts and a step toward building the seaway.

Coal Men Object: This St. Lawrence hydroelectric project also is unrelated to the Niagara Falls power controversy; the two sites are some 250 miles apart. And Gov. Dewey maintains that there's no public vs private power question involved in the St. Lawrence project; only one private firm has expressed interest, and it's regarded as too small and inexperienced for the job.

One opponent of the move is the Central Pennsylvania Coal Producers' Assn., which would prefer that the area's power needs be supplied by coal-fueled steam plants. CPCA argues that FPC can't authorize "half a project"—meaning the structures on the U.S. side of the river. A group of about 1,800 owners of property along the south shore of Lake Ontario is also fighting the project.

LEGAL . . . . . .

Looking This Way: A hint came out last week that the Antitrust Div. of the U. S. Dept. of Justice is scrutinizing the industries based on science and technology. At the meeting of the New York State Bar Assn., Attorney General Herbert Brownell, Jr., declared that "Competition in the research laboratories is as important as in the market place"; Antitrust chief Stanley Barnes said his staff is looking into several cases in which it's suspected that technological progress is being retarded.

"Ever watchfull we must be," Brownell told the lawyers, "to assure that new industries, stemming from improved techniques or discoveries, are free to develop."

Meanwhile, graphite makers are mulling over the government's latest antitrust suit, filed in the federal district court at Newark, N.J. In that suit, Barnes' division accuses the country's four biggest pencil manufacturers of violating the Sherman law through "price-fixing agreements covering lead pencils sold to local government agencies."

North of the border, industry appears to be restive under current antitrust enforcement policy. R. M. Fowler, president of Canadian Pulp & Paper Assn., urges a reassessment of relations between business and government. He complains that "one after another of the Canadian companies are being picked off and are being investigated for four or five years and brought into court to face documents extending back over 20 or more years."

•

Drug Misbranded: A federal judge in Atlanta, Ga., has ordered the Rhodes Pharmacal Co. of Cleveland to relabel 229 cases of a drug shipped to Atlanta. The packages originally were labeled "Tryptacin," and this was ruled "misbranding."

•

Fertilizer Code: Simplification of South Carolina's state laws on manufacture and sale of commercial fertilizers is being considered by a legislative committee in Columbia. The proposal under study is to bring "scattered" laws together in a single statute that would yield clarification but create no major changes in present regulations.

•

Patent Conflicts: Federal court dockets continue to get their share of litigation over patents of interest to chemical and pharmaceutical companies.

• Among the newest of such suits is the one filed last week in U.S. District Court at Wilmington, Del., over a patent assigned to Columbia-Southern Chemical Corp. through its parent company, Pittsburgh Plate Glass. Columbia-Southern wants the court to amend a decision by the Patent Board of Interferences and rule that the invention in question was the first in its field. Defendants include Orlando Leonard Bertorelli of Borger, Tex., and the J.M. Huber Corp. of Texas and New Jersey.

• A district court has ruled that American Cynamid did not infringe the anti-anemia vitamin patent held

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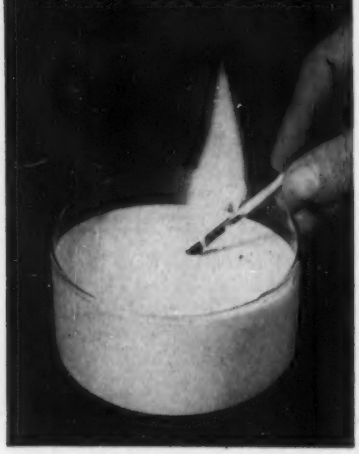

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by Parke, Davis & Co.; and the Court of Appeals at Detroit has upheld that decision.

• Pending in the District Court at Chicago is a civil suit over a patent for making flattened thermoplastic tubing. The Visking Corp. is plaintiff; Durethene Corp. is defendant.

Five-Ring Circus

A lawyer's dream is the tangled web of litigation involving two manufacturers of pressure-sensitive transparent adhesive tape, Minnesota Mining & Mfg. Co. of St. Paul and Technical Tape Corp. of New York.

Five law suits between these firms (including one suit against a company that does business with Technical) now are "in the works" in Illinois, New York and Missouri. In two cases, 3M charges that its Scotch Tape patent is being infringed by Technical's Tuck Tape, and is asking for injunctions and damages. In another pair of cases, Technical wants the court to adjudge that patent No. 2,177,627 is either void or limited so there's no infringement. And in the fifth suit, 3M alleges that Technical "pirated" information about the Scotch Tape manufacturing process by hiring a man who formerly was assistant chief quality control supervisor at 3M's plant in Bristol, Pa.

Business Uninterrupted: Meanwhile, both companies continue to make and sell their tape products, and neither party appears ready for a retreat. Principal jockeying as of this week is over the question of whether the basic issues should be tried in the U.S. District Court at Chicago or in the one at New York. Chicago is 3M's preference, possibly because the Scotch Tape patent was declared valid there in a previous case some seven years ago. Technical is holding out for trial in New York.

One part of the Chicago-or-New York battle is scheduled to be fought next week, when the New York court will hear arguments on jurisdiction. That's in Technical's first suit, filed more than two years ago. In Technical's second action, started four months ago, 3M still hasn't filed its reply.

At issue in the "piracy" suit brought by 3M in New York Supreme Court for Westchester County is the legality of the "technical secrecy" clause in the 3M contract signed by the transplanted chemist, Frederick C. Beyer, in which Beyer allegedly stipulated that he would not reveal any of 3M's confidential information. Whatever the court decides, it will be of importance to all chemical companies now using similar agreements with scientific personnel.

LABOR . . . . . .

Advice for Employers: At two conferences next month, the American Management Assn. will bring to its members information on current trends in labor and industrial relations.

• Secretary of Labor James P. Mitchell will be principal speaker at the AMA's general management conference, March 9-12 at San Francisco. He'll report on national labor policies and economic progress, and other speakers will discuss the "job reappraisal" and "personnel evaluation"

LABOR'S MITCHELL: For AMA members, a report on GOP labor policies.

that management can do in tightening organization and control to meet the buyers' market.

• "Employee group benefits" will be the subject of a special AMA conference March 18-19 in New York.

•

Differentials Down: With the spread between wage rates for skilled craftsmen and rates for unskilled laborers having dwindled considerably in recent years, there's a trend toward contracts that maintain or increase the wage differential for more experienced workmen.

Skilled workers were receiving an average of 100% higher wages than janitors and helpers in U.S. industry back in 1907, but this differential shrank to 80% in 1931-32, 65% in 1937-40, 55% in 1945-47, and to only 37% in 1952-53.

Much of this "compression of wage

differentials," according to a recent study by the AFL Research Dept., is the result of labor union policy to strive for across-the-board wage rises. This practice pushes all wages up along parallel inclines, so that a 50¢ differential that loomed large in 1920 now may be less than one-third of unskilled wage rates.

AFL recommends to its member unions that "adequate skill differentials" should be maintained.

•

Still No Break: Though 1954 is well on its way, there's still no sharp break in the upward movement of chemical wage rates. Among latest contracts negotiated:

• District 50, United Mine Workers, has new agreements calling for a 5¢ general increase for employees of Eavenson Soap Co., Camden, N.J.; 10¢ and an additional paid holiday (Good Friday) at the Monsanto plant in Nitro, W. Va.; and an immediate rise of 5¢ and another one this November for workers at Diamond Alkali, Painesville, O. Diamond also is freezing its former 16¢ cost-of-living bonus into base wage rates.

• For three locals of United Gas, Coke & Chemical Workers, 1954 looks to be a prosperous year. Linde Air will hike wages by 10¢/hour at Youngstown, O. General Chemical Div. of Allied Chemical will grant increases of 9¢, 11¢ and 15½¢ to various employee groups at Nitro, W. Va., and also incorporate the 12¢ cost-of-living increase into base rates; and Dearborn Chemical at Chicago will boost wages by amounts ranging from 5 to 48¢ for an average of 24¢/hour.

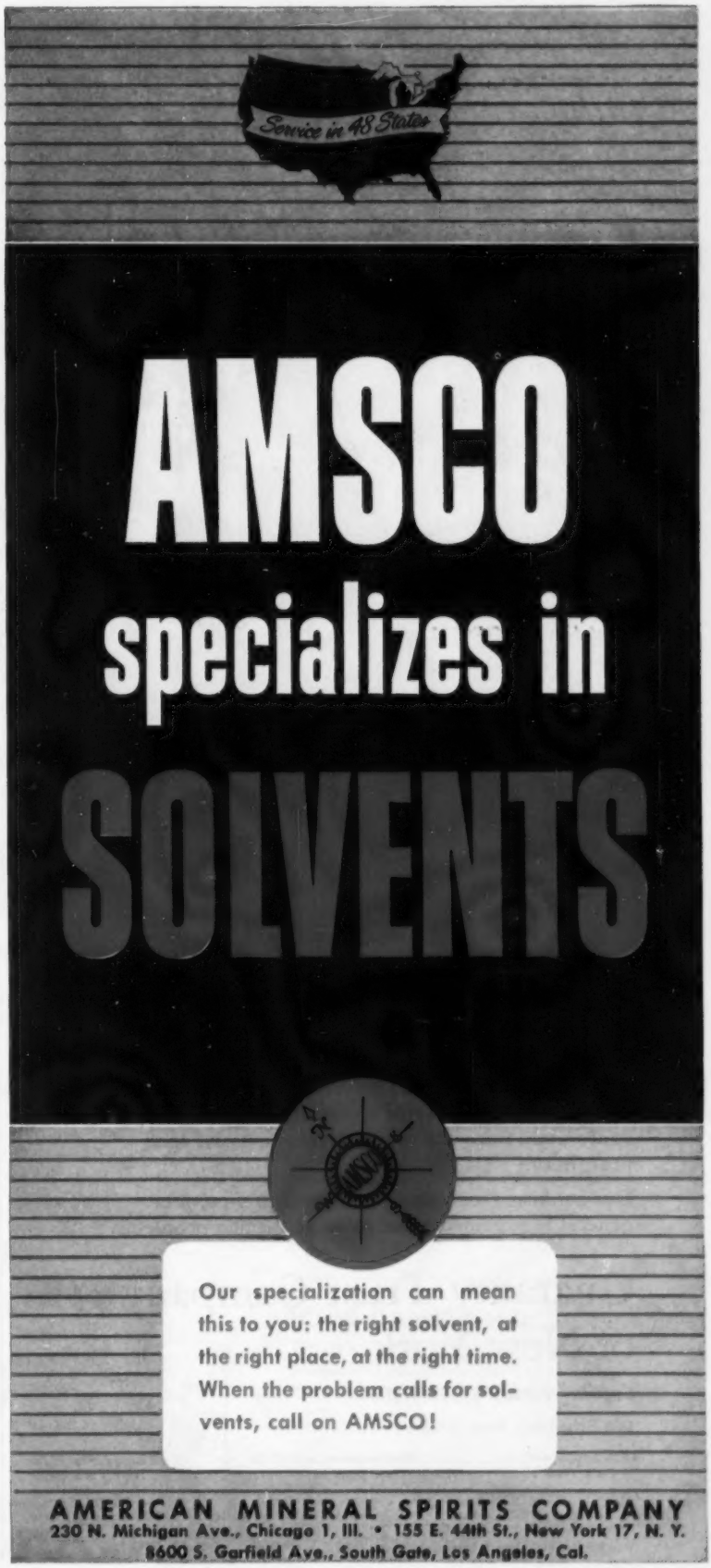
FOREIGN. . . . .

Potash/Germany: Production of raw potash salts in Lower Saxony (Hanover area) totaled close to 6.9 million tons last year—a 3.6% boost over 1952 output. Home sales were falling off at year's end due to expected price cuts, but exports are more than taking up the slack. Main export market: France, where strikes last August cut potash production.

•

U.S.-Pakistan/Cooperation: The Pakistan government has signed five agreements with the U.S. Foreign Operations Administration for financing national development. Under terms of the agreement, the U.S. agrees to aid new projects, and to increase its contribution to development schemes currently under way. Included in the deal:

• Backing of a general development plan in the Chittagong area of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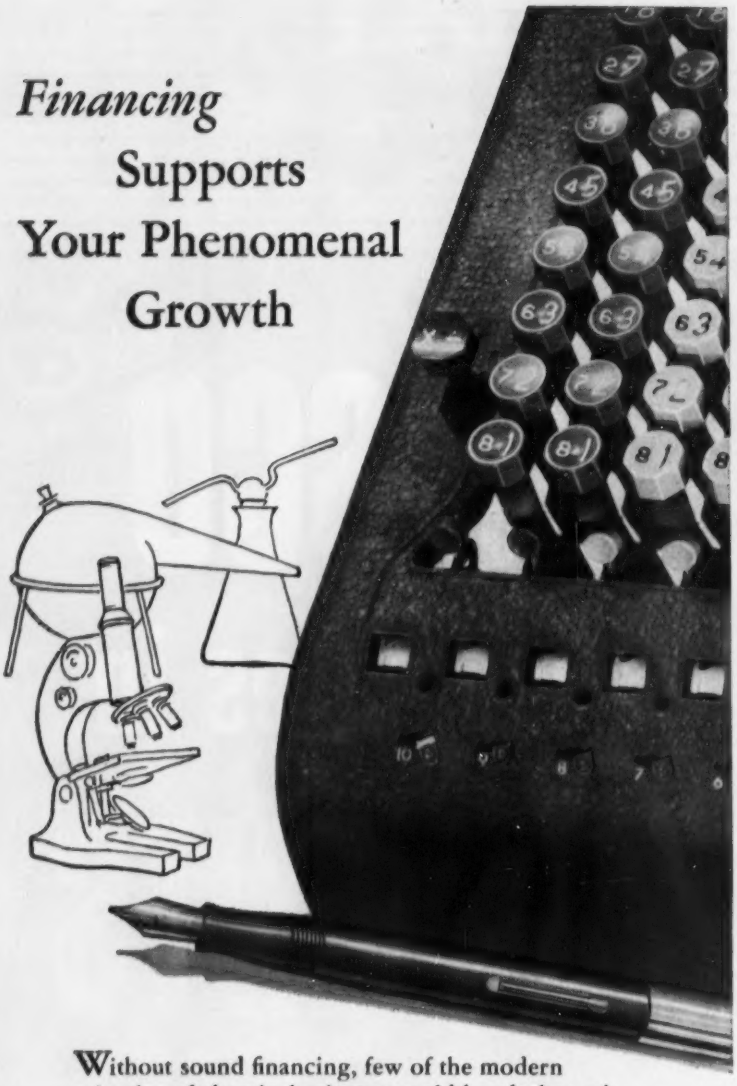

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East India, estimated to cost $750,000.

- Aid in the further exploitation of forest wealth, also in the Chittagong hills. The U.S. provided $300,000 for the work accomplished last year, will add an extra $100,000.
- Additional financial support of Pakistan's fertilizer plant under construction at Duad Khel in the Punjab. The U.S. will give $3.5 million this year, bringing total contribution in the project to $10.5 million.
- Export of $4 million worth of fertilizer to Pakistan immediately—for use on 1954 spring crops.
- Dollar grants for plant protection projects aimed at encouraging local use of insecticides, pesticides, etc. The problem of educating the Pakistanis is a major roadblock to national chemical development, and—recognizing the need—the FOA is to plunge $300,000 into the educational drive this year.

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Antibiotics/Hong Kong: The Hongkong Dept. of Commerce and Industry has relaxed controls on the importation of antibiotics, antimalarials and sulfa drugs in the Crown colony and for destinations other than China or Macao. The action should further swell imports (nearly twice as large in '53 as in '52), encourage German drug shipments to Hong Kong—up threefold last year.

KEY CHANGES. .

Herschel H. Cudd, to manager of research and development, American Viscose Corp., Philadelphia.

David R. Calhoun, Jr., and **John M. Meyer, Jr.,** to directors, Mallinckrodt Chemical Works, St. Louis.

Richard O. Roblin, to assistant general manager, Research Div., American Cyanamid Co., New York.

M. S. McCauley, to director of business research, Organic Chemicals Div., Monsanto Chemical Co., St. Louis.

J. D. McPherson, to manager, Manufacturers Chemicals Dept., American Cyanamid Co., New York.

Raymond Szymanowitz, to executive vice-president, Acheson Industries, Inc., New York.

Isaac Harter, to director, Vitro Corp. of America, New York.

DIED. . . . . .

Jacques P. Wolf, 80, president and founder of Jacques Wolf & Co., in Montclair, N. J.

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CONGRATULATIONS: Another "Doctor of Dioxide Development" gets his diploma.

If I Knew You Were Comin'...

Whistling while they bake, leavening agent salesmen are working hard over a hot stove to become "Doctors of Dioxide Development." They'll agree, it's fine to have a Ph.D. in chemistry from Cornell, but the man who really gets ahead at Monsanto has his diploma from "Fosforatus Institutionatus Rex."

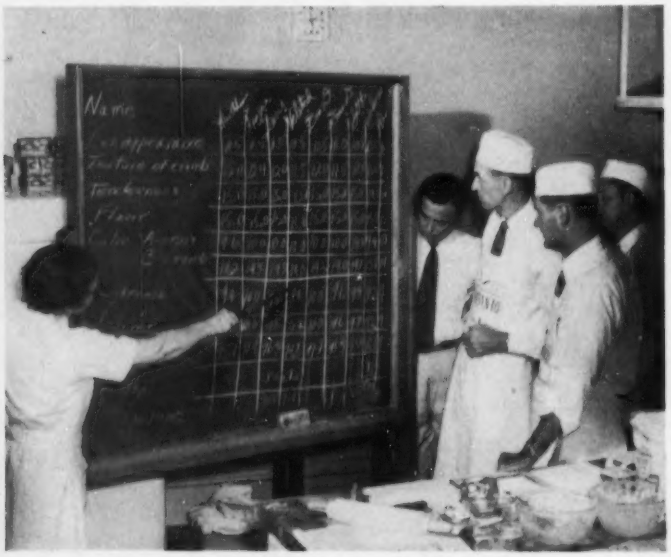
This week, 12 more of these "degrees" will be conferred on salesmen who have "phlegmatically prostrated themselves on the altar of phosphate finagling." These kitchen-wizards—"Professors of Phosphate Promulgation"—are graduates of the company's three-day leavening agent school organized by the Inorganic Chemicals Division for all leavening agent salesmen. The course is the kickoff for the introductory promotion of Py-Ran, a coated anhydrous monocalcium phosphate leavening acid.

Jocular as it may sound, there's a serious motive behind the school: the leavening business is highly competitive and Monsanto is exploiting the old sales adage: "Know your product, your customers' problems—then you'll sell."

Technical Know-How: The school's faculty comes from the company's Food Technology Lab in Dayton, O. Along with discussion of particular sales problems, lectures cover:

- The history of leavening agents and the development of leavening products.
- Flour milling and the manufacture of leavening agents.
- Research in and chemistry of leavening.
- The differences in various self-rising and phosphated flours, baking powders and prepared mixes.

Biscuit Bakers: Things really get rolling when the class dons chef's caps and aprons and invades the food technology kitchen. Eager to get started, most of the salesmen want to bake cakes right away. But, aware that there's more to cake making than being dressed for the occasion, the feminine staff members start the class off with instructions on how to use the various utensils. Elizabeth McKim supervises the would-be chefs, helps keep their creative culinary talents on the right track. She bakes biscuits, doughnuts, pancakes and a layer cake for the beginners, demonstrates prop-



LEAVENING LECTURES: Chemistry of leavening agents helps salesmen understand customer's problems, evaluate baking errors.

Aero*

PHTHALIC ANHYDRIDE

another Cyanamid quality intermediate for

ALKYD RESINS for use in surface coatings, and as an intermediate in the production of

POLYESTER RESINS, the high strength thermo-setting resins with untold commercial possibilities, and as

PLASTICIZERS for vinyl resins for sheeting, coating resins and many other uses, and for

DYES AND PIGMENTS, perfumes, insecticides, pharmaceuticals and other products.

AERO Phthalic Anhydride is immediately available in both pure white flake and molten form.

As a producer of this important intermediate for thirty years, Cyanamid is prepared to work closely with you in your phthalic anhydride applications. A new technical bulletin on AERO Phthalic Anhydride – its properties and methods of handling – has just been published. Write for your copy today. If you wish assistance on technical problems, a Cyanamid representative will be glad to call.

NEW Technical Bulletin available.

Write today!

*Trade-mark

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AMERICAN Cyanamid COMPANY

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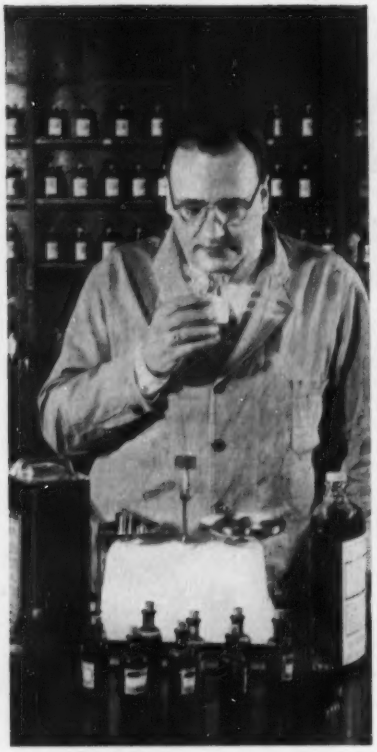

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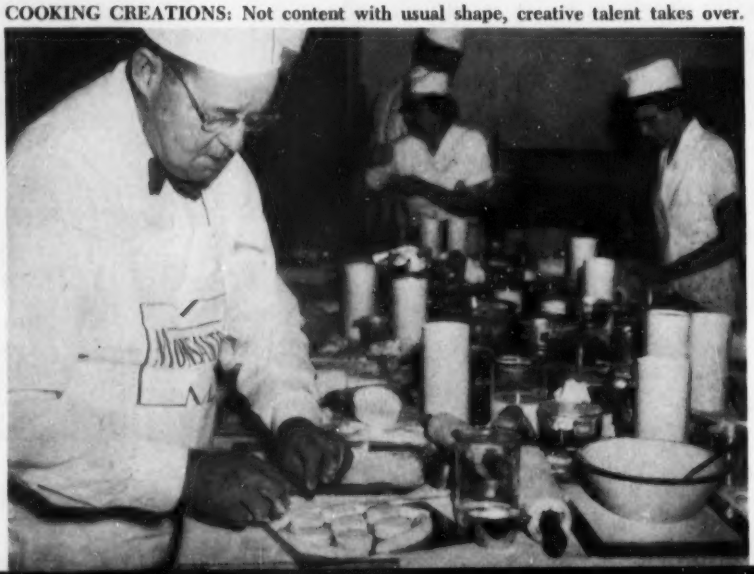
COOKING CAPERS: "It looks good—but how do I get it out of the pan?"

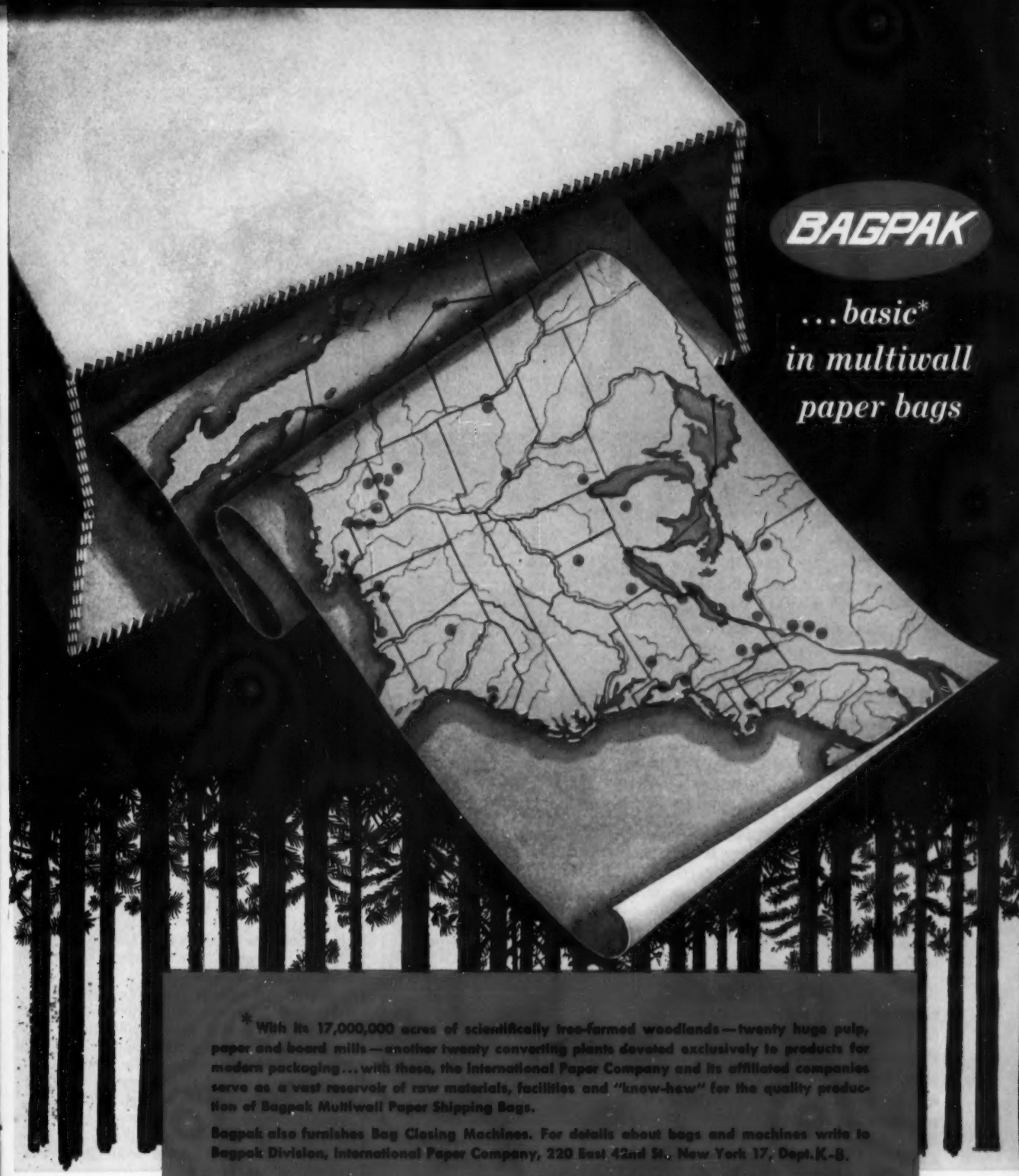
If I Knew You Were Comin' . . .

(Story begins on p. 28)

COOKING TECHNIQUES: "It's all in the grip!"

COOKING CREATIONS: Not content with usual shape, creative talent takes over.





*With its 17,000,000 acres of scientifically tree-farmed woodlands—twenty huge pulp, paper and board mills—another twenty converting plants devoted exclusively to products for modern packaging... with these, the International Paper Company and its affiliated companies serve as a vast reservoir of raw materials, facilities and "know-how" for the quality production of Bagpak Multiwall Paper Shipping Bags.

Bagpak also furnishes Bag Closing Machines. For details about bags and machines write to Bagpak Division, International Paper Company, 220 East 42nd St., New York 17, Dept. K-8.

International Paper COMPANY

BAGPAK DIVISION

BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston • Chicago • Cleveland • Denver • Detroit • Kansas City, Kansas • Los Angeles • New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • IN CANADA: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto

Blaw-Knox Dug The Foundation For Oklahoma's 14 BASIC BREEDER CHEMICALS*

Yes, we've turned the ground for you—explored the possibilities—and we now have something *concrete*—a factual Preliminary Evaluation by the Blaw-Knox Company on *raw material advantages in Oklahoma.*

Further than that, though—a supplementary and exhaustively detailed study as to *your* own *specific* requirements can be made as soon as we know the extent of your needs. This *specific analysis*, supplementing the Preliminary Blaw-Knox Report will include all pertinent factors—from flow diagrams of proposed plant facilities to an analysis of future markets for your products.

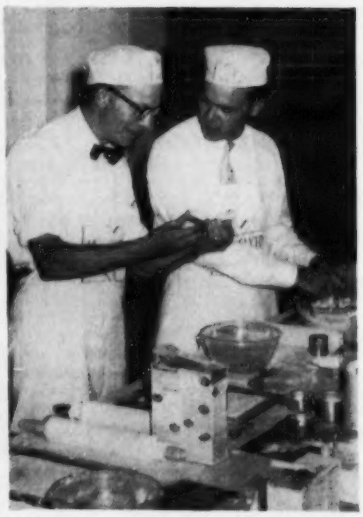
No obligation is involved for either of these reports and all such requests will be kept confidential. Write immediately for the Preliminary Evaluation, and give us your specific needs for the Supplementary detailed analysis.

- ACETYLENE
- ETHYLENE
- VINYL CHLORIDE
- CHLORINE
- NITROPHOSPHATES
- PHENOL
- CYCLOHEXANE
- XYLENES—PHTHALIC ACIDS
- SILICONES
- AMMONIA
- STYRENE AND POLYSTYRENE
- GLYCERINE
- CALCIUM CYANAMIDE AND HCN
- HYDROFLUORIC ACID

Those basic materials which serve as starting points and "BREED" additional industry

OKLAHOMA
PLANNING AND RESOURCES BOARD
Write – Czar Langston, Director
State Capitol Bldg.
Oklahoma City, Okla.

For *general* information on Oklahoma plant location possibilities, write for "Oklahoma—State of Industry" — a free brochure outlining the state's facilities.



AMAZED AT RESULTS: Many found biscuits were definitely edible.

If I Knew You Were Comin' . . .

er techniques. Her baked products are evaluated against a standard scoreboard; the good and bad points are discussed to demonstrate what can be expected from various leavening agents.

When the novices go to work the flour flies in all directions. Confidence comes with the mastery of the various kitchen devices, and creative talents appear. Many are surprised how good the finished products turn out to be.

Cereal chemist McKim analyzes the salesmen's work, assigns each effort a rating. (The trainees are fairly secretive about their success or failure—caution each other "don't let my wife ever find out about this.")

Scoreboard ratings take into consideration: appearance, texture of crumb, tenderness, flavor, color of crust and crumb, lightness, and volume. Penalties are assigned for extra help from the food technology staff. Class enthusiasm reaches a high pitch when scores go up on the board to determine the best biscuit baker.

Ready to Serve: Aside from its training value in imparting I-know-from-personal-experience confidence to its salesmen, the baking course embodies another motive: in a soon-to-be distributed booklet—beamed at domestic science teachers, home economists and the trade—the company points up its salesmen's kitchen-range knowledge in these words: "He knows from his own actual baking experience just what your problems are."

For Plasticizer Permanence ...where the traffic is tough—

PARAPLEX G-25
PARAPLEX G-40
PARAPLEX G-50
PARAPLEX G-53

Permanent Polymeric Plasticizers

Where vinyl products must stand up for years under all kinds of abuse, permanent plasticizers are essential—for loss of plasticizer invariably means embrittlement and service failure. Choose one of these PARAPLEX polymeric plasticizers, and you can expect high quality service throughout the life of your product.

PARAPLEX G-25 has long been recognized as the best plasticizer for all-around performance and long life. Non-volatile, non-migratory, highly resistant to extraction by water, oil, and gasoline.

PARAPLEX G-40 is a lower cost plasticizer, which has many of the properties of PARAPLEX G-25. It has better color, oil resistance, and resistance to migration into rubber.

PARAPLEX G-50 is the most economical of the permanent plasticizers, representing an excellent compromise between quality and cost. It is easy to handle, and is an excellent pigment grinding medium.

PARAPLEX G-53 is a highly permanent plasticizer, combining moderate price with resistance to extraction by oil, soap, or water, and freedom from migration, particularly into polystyrene.

CHEMICALS FOR INDUSTRY

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THE RESINOUS PRODUCTS DIVISION

Washington Square, Philadelphia 5, Pa.

Representatives in principal foreign countries

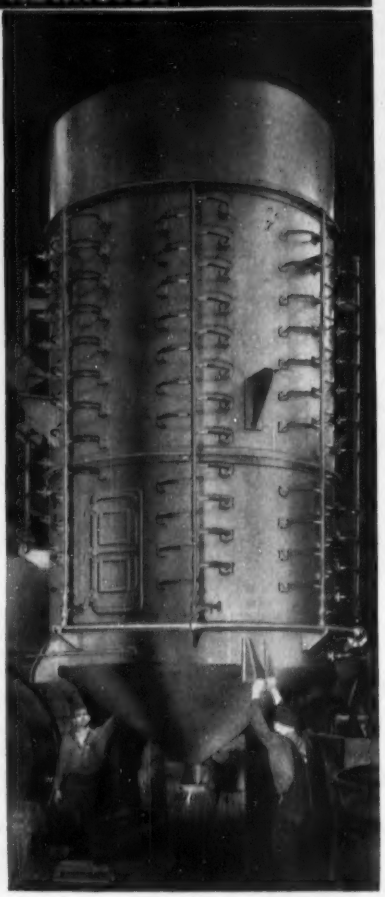
PARAPLEX *is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.*

New AIR CLEANING APPLICATIONS
High COLLECTION EFFICIENCY
Low SYSTEM RESISTANCE
Freedom FROM CLOGGING or STICKING
Resistance TO HIGH HEAT, CORROSION and ABRASION

"Buffalo"

HYDRAULIC SCRUBBING TOWERS

This new "Buffalo" wet centrifugal air cleaner solves formerly difficult problems. Its system of closely spaced Fog Type Nozzles creates a fog which jets the air or gas thru the unit, thus overcoming its own resistance. Each layer of fog condenses the one below, permitting gravity travel of the trapped material. This centrifugal spray action, plus scrubbing action against a wetted surface, results in extremely high collection efficiency with no tendency to become clogged, abraded or corroded.



A Compact, Easily Installed and Maintained Unit.

Whatever your cleaning problem—gases, dusts, linty or stringy discharges—by all means, investigate this new and trouble-free wet cleaning method. Request new Engineering Bulletin AP-525, on your company letterhead.

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VENTILATING EXHAUSTING | AIR CLEANING FORCED DRAFT | AIR TEMPERING COOLING HEATING | INDUCED DRAFT PRESSURE BLOWING

HOME ECONOMIST CARROLL: Her job—softening hard water's language.

Chemistry in the Home

When the American housewife adds a new product to her shopping list, she may well start that item on the road to success. Even a small percentage of this huge buying potential means a sizable market.

This week, Dow Chemical Co. strengthened its bid for those ultimate consumers' dollars by appointing home economist Leone Rutledge Carroll as consultant on new products.

Like those of most chemical producers, Dow's products don't ordinarily lend themselves to promotion through the usual consumer advertising channels. The sales facts of plastic raw materials for household wares, or the story behind synthetic ion-exchange resins used in home water softeners is difficult to relate unless the prospective buyer understands the chemistry involved.

Teaching chemistry to homemakers will be Mrs. Carroll's job, as Dow shifts its educational campaign into high gear. Some 10,000 home economists, home demonstration agents, home economics editors and women's program announcers will receive informational material.

Mrs. Carroll, who was "Mary Dunbar" of Jewel Tea Co. for 16 years, told 70 water softener manufacturers at a recent promotional meeting at Midland: "I hope to interpret for the average woman the wealth of information on water softening that is now hidden in a maze of technological language."

CSC makes more METHANOL

With the recent opening of the valves of the newly completed $20 million facilities at Sterlington, Louisiana, Commercial Solvents Corporation becomes one of the world's largest producers of methanol, for sale to meet the growing needs of expanding American Industry.

For steady, dependable large-volume supply of methanol, CSC is your logical source.

High-quality CSC methanol, produced from natural gas, is being supplied at a minimum purity of 99.85% in tanker, barge, tank car, tank truck and drums to all parts of the United States from conveniently located bulk and distribution points. For further information contact the Industrial Chemicals Div., Commercial Solvents Corporation, 260 Madison Ave., New York, N. Y.

INDUSTRIAL CHEMICALS DIVISION

CSC

COMMERCIAL SOLVENTS CORPORATION

ALDEHYDES • ALCOHOLS • ESTERS • AMINES • AMINOALCOHOLS
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ALL RUBBER DRUM

SAFE AND EASY TO HANDLE!
NO METAL
NO BREAKAGE

for

- MURIATIC ACID
- HYDROFLUORIC ACID
- FERRIC CHLORIDE
- CORROSIVE LIQUIDS

★

ICC-43A SPEC.
Tare Weight—34 lbs.
13 gallon capacity

★

Made with
Natural, Neoprene,
Butyl or other Synthetic
Rubber Linings

★

Threaded or Stopper type closures

GENERAL

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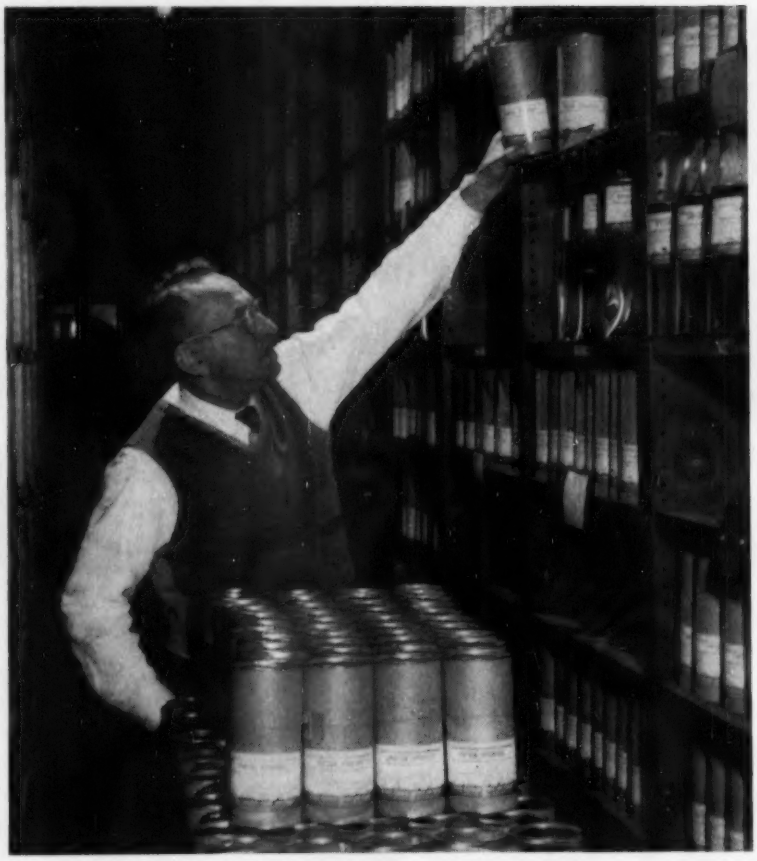

SAMPLE STREAMLINING: Carbide's packaging department spruces up its . . .

. . . "Little Salesmen"

Convinced that chemical samples should turn in top performances as chemical salesmen, at least one major company has lately been devoting more attention to its sample packaging. Last week, Carbide and Carbon Chemicals Co. detailed its sample operations at its new South Charleston Small Shipments Dept.

And although sampling may play only a minor part in over-all sales efforts, keeping 10,000 packages coming off the line every month calls for a smooth-running system. Carbide estimates that it spends close to $150,000/year turning out this number of "little salesmen."

Recently, Carbide decided that its samples were unsatisfactory in several respects:

- Containers were not uniform in size or shape, awkward for changing runs.
- Both inner protective packing and outer container were deemed inadequate.
- Sample operations were too costly, interfered with regular production runs.

Taking up these problems, one by one, this is how Carbide has licked them:

- Since 90% of its samples are in liquid or semiliquid form, containers are now standardized into two sizes—8-oz. bottles and gallon tins.
- The old sawdust packing, which practically called for "a small wastebasket to be shipped with the sample," is now replaced by a neat, blanketlike paper filler.
- Newly adopted sleeve-type tubes, as outer containers, supersede the more fragile metal screw-cap tops, ease the purchasing agent's job of opening a roughly handled package.
- New labels conform to regular Carbide product labels, thus increase identity value.
- An independent sample package line now runs parallel to the South Charleston production line. As sample stocks need replenishing, the 8-oz. bottles and gallon tins are filled from

148

Jefferson... for highest — quality

ETHYLENE OXIDE

Available immediately in tank cars and in ICC 5P insulated drums (400 lbs. net) or in samples for your preliminary investigations. Address inquiries to Department B

Produced by specialists in "essential chemicals from hydrocarbon sources."

Ethylene Oxide
Ethylene Glycol
Ethylene Dichloride
Diethylene Glycol
Monoethanolamine
Triethanolamine
Nonyl Phenol
Morpholine
Ethylene Carbonate
Propylene Carbonate

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CHEMICAL COMPANY, INC.
260 MADISON AVENUE, NEW YORK 16, N. Y.

Branch Sales Offices: 180 West Washington St., Chicago 2, Ill.; 318 Metroco Bldg., Houston 2, Texas
Sales agent: Nelson A. Howard, Jr., 900 Wilshire Boulevard, Los Angeles 17, California
Warehouse Stores: Tenafly, New Jersey; Chicago, Illinois; Houston, Texas

Briefs

From recent literature

No. 5 in a Series

Rubber substitutes for certain applications can be prepared by vaporizing ethylene oxide into a mixture of phosphoric anhydride and dry chloroform. The product of this reaction is a water-soluble liquid. When this liquid is heated at 130-135°C. for 2½ hours, a rubber-like polymer is formed. Flame-resistant quality can be imparted to wood, paper and fabrics by impregnating these materials with the monomer. The polymer can be used as a curing agent on resin films of the urea-formaldehyde type.

Sun-tan lotions which are odorless and non-irritating are prepared by reacting p-aminobenzoic acid and ethylene oxide in the presence of an alkali metal hydroxide.

Tertiary-alkyl mercaptans can be reacted with ethylene oxide to produce beta (tertiary-alkylthio) ethanols. These ethanols are used in diesel fuels to improve the cetane number, as plasticizers in the preparation of lube oil additives and as insecticides.

A condensate of ethylene oxide and a fatty acid containing from 12 to 18 carbon atoms or a condensate of ethylene oxide and castor oil is used in the hydration of sorbitan monostearate. These condensates impart emulsifying and whipping properties to the sorbitan monostearate when it is used with hydrogenated vegetable oils in cake batter.

These developments are abstracted from recent publications or U. S. patents. They may suggest applications of Jefferson Ethylene Oxide in your products or processes.

Another Beckman Achievement

BECKMAN Model W Industrial pH Meter

—A Husky New Addition to America's Most Distinguished Family of

New Savings—New Speed New Production Advantages

Beckman — pioneer of virtually every major advancement in pH equipment — now presents a significant new development in industrial pH instruments — the new Model W Industrial pH Meter.

This new industrial pH Meter takes advantage of modern electronic engineering, using miniature and subminiature tubes and printed circuits. It is only one-quarter the size of conventional pH instruments . . . and is designed to save maintenance costs by sturdy, moisture-proof construction. The instrument circuit is of a completely new Unitized design — made in three separate plug-in sections, any of which can be interchanged in the field to avoid downtime.

Whatever your industry, whatever your pH problem, get the facts about Beckman pH Control Instruments. Write for Data File No. 86 — 17.

Many New and Improved Features

ADVANCED DESIGN
Unusually compact, utilizing subminiature components and printed circuits.

ACCURACY
Signal to recorder accurate within ± 0.02 pH.

SIMPLIFIED MAINTENANCE
Easily disassembled for quick maintenance . . . plug-in units.

DEPENDABILITY
Unaffected by line voltage fluctuations, corrosive atmospheres, vibration, or electrical machinery.

SPLASH PROOF
Designed for high humidity and outside exposure conditions.

EXPLOSION PROOF
Can be used with air purge in explosive atmospheres. Heavy cast iron case available.

Beckman *division*
BECKMAN INSTRUMENTS, INC.
SOUTH PASADENA 1, CALIFORNIA

drums pulled from the production run.

And best of all, in the eyes of the company: its new standardization allows complete stocking of the myriad products at South Charleston, makes for quicker sample service.

Cost Rise Combat

To battle the continually rising costs of small shipments, the American Pharmaceutical Manufacturers' Assn.'s Eastern section was offered a two-pronged plan of attack last week by Gustave Cederholm, traffic manager for Warner-Hudnut, Inc.

Speaking at the opening session of a three-day meeting of the APMA at the Roosevelt hotel in New York, he emphasized the drug industry's small-order shipping problems, stated that parcel post shipment costs for a 30-lb. package have risen 375% since 1940—the carriers philosophize "It's costing us more money; therefore, we must get more money from the shippers."

Cederholm's countermeasures:

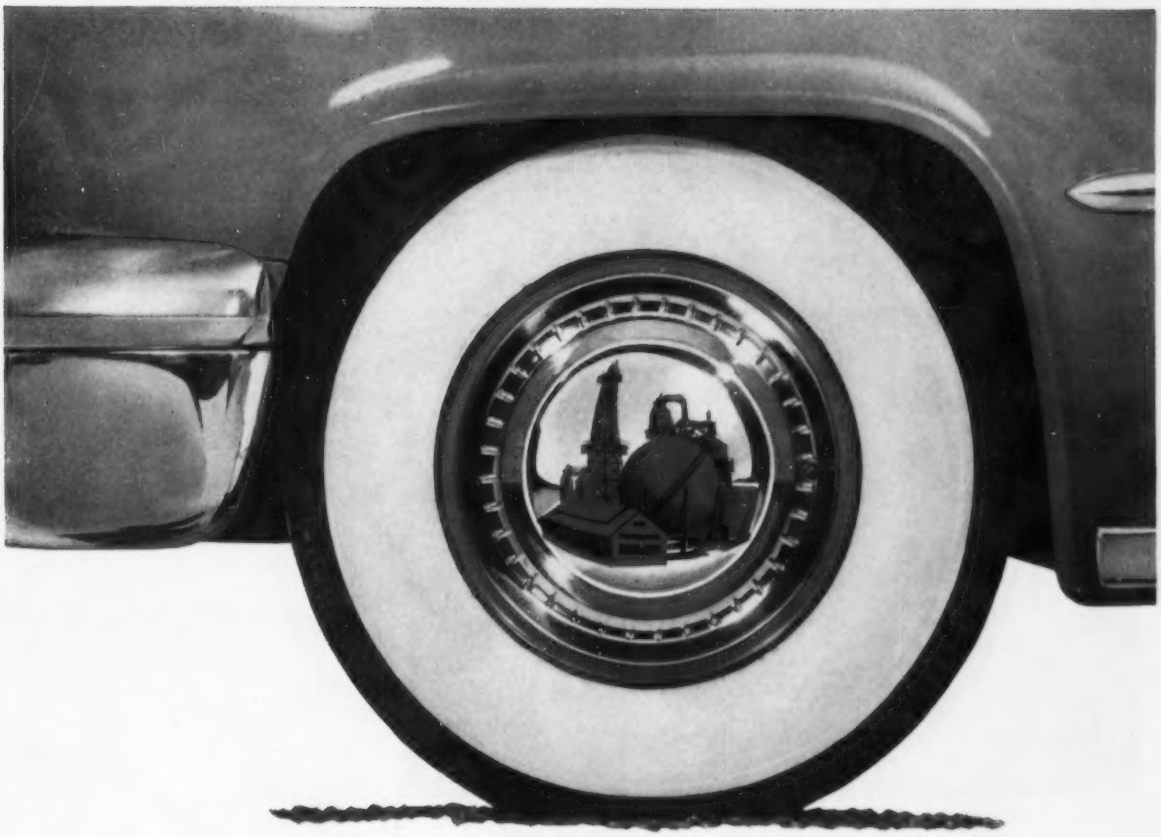
- Shippers and carriers must unite to reduce transportation costs through development of new techniques and job simplification methods.
- Top management must work with the various drug traffic organizations, constantly opposing continual increases on small shipments granted carriers by federal and state regulatory bodies.

No Chlorine Leaks?

In order to make sure that nobody finds a loophole in the Interstate Commerce Commission rules on hauling liquid chlorine in bulk, Chlorine Institute, New York City, is asking the commission to clearly define its prohibition against transportation of the chemical in tank trucks. Truckers are currently forbidden to carry the stuff under ICC regulations for transportation of explosives and other dangerous articles, but the institute wants clearer definition of, and wider publicity for, the rules.

Liquefied chlorine must be carried under pressure, which presents special problems in designing equipment. Thus far, the institute claims that there is no tank truck unit capable of safely transporting it, that there has been no carrying or handling procedure set up that is adequate. Transfer from truck tank to storage facilities is still another problem that is seeking solution.

By nature, chlorine is a dangerous commodity. A potentially lethal gas, it's two and a half times as heavy as



Keeping tire prices down to earth

Not for long did the pressure of rising prices challenge the ingenuity of the tire industry. Cost-saving answers had to be found. One of the answers was discovered in a group of chemicals made from petroleum. The Olefins are one of this group and a member of Atlantic's growing chemical family. Hence the miniature oil refinery in the picture.

Olefins save money for tire producers by saving time. They're one of the important ingredients in modern rubber chemical accelerators used in curing. Result: tires set faster . . . can be removed quicker from the molds. And time saved there means economies which can be passed on to the consumer in the form of more attractive prices.

Olefins find other important uses in industry, too . . . in the manufacture of superior resins for enamels and varnishes, and in insecticides, germicides, dyes, cutting oils, and gear lubricating oils. And Olefins are just one of a broad line of petrochemicals now being produced by The Atlantic Refining Company.

Atlantic Research works hand-in-hand with industry to help improve quality, cut costs, or develop new products. Write for information on how petrochemicals can be helpful to you. The Atlantic Refining Company, Dept. H-7, Chemical Products Sales, 260 South Broad St., Philadelphia 1, Pa.

ATLANTIC PETROLEUM CHEMICALS

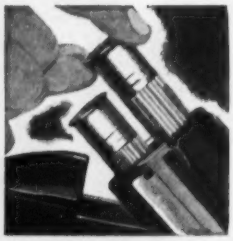
Philadelphia, Providence, Charlotte, Chicago.
In the West: *L. H. Butcher Co.*

In Canada: *Naugatuck Chemicals Division of Dominion Rubber Company, Ltd.*

In Europe: *Atlantic Chemicals SAB, Antwerp, Belgium*

Look what KOPPERS Resorcinol can do for you

in rubber tires, industrial belting and hose



in ammunition primers

in wood bonding

in pharmaceuticals

in cosmetics

in textiles and leather

● Resorcinol is a water soluble, crystalline, dihydric phenol. Possessing high reactivity, it undergoes most of the typical reactions of phenols including nitration, alkylation, condensation, etherification, and oxidation.

Koppers Resorcinol is used extensively in the preparation of room-temperature-setting adhesives to bond reinforcing fibers to synthetic and natural rubber. Among the many products made stronger by resorcinol-based resin adhesives are rubber tires, industrial belting and hose. Resorcinol-based adhesives have found wide application also in wood bonding where waterproofing and permanence are mandatory.

In addition, Koppers Resorcinol is used in the production of dyestuffs, cosmetics, pharmaceuticals, textile and leather chemicals, explosives, plasticizers and a number of other products.

Write for your copy of Koppers Resorcinol Booklet.

Resorcinol is only one of the many synthetic chemicals produced by Koppers. Others include Styrene Monomer, Polystyrene, Phthalic Anhydride, Divinylbenzene, and Di-tert-butyl-para-cresol. For further information on any of these chemicals, write to:

KOPPERS COMPANY, INC.
Chemical Division, Dept. CW-24
Pittsburgh 19, Pennsylvania

SALES OFFICES: NEW YORK · BOSTON · PHILADELPHIA · ATLANTA · CHICAGO · DETROIT · LOS ANGELES

KOPPERS Koppers Chemicals

DISTRIBUTION. . . .

air, thus remains close to the ground when it's free, and is difficult to disperse. An accident could quickly create a harmful situation.

Chlorine Institute wants ICC to implement its prohibition against bulk hauling by notice to the public that such transportation may not be performed until a suitable unit and safe operating procedures have been prescribed in the commission's regulations.

•

For the Bookshelf: Among the current offerings are these:

• Carbide & Carbon Chemicals Co. (New York City) has issued a bulletin on ethyl silicates. Information included: properties, specifications, shipping data, methods of use, and applications.

• Schwarz Laboratories, Inc. (Mount Vernon, N.Y.) has revised its Bulletin No. 106B on adenylic acid. The new bulletin describes the two isomeric components of adenylic acid and their properties.

•

New Films: Ready for distribution:

• Air Reduction Co., Inc. (New York): A 16-mm. sound movie titled "Whatever We Do." It sketches industrial applications of atmospheric gases.

• Shell Chemical Corp. (New York): A 16-mm., 12-minute film, "Corn's Hidden Enemies." Subject: Shell's insecticide, Aldrin.

•

New York Agent: Gowdy Co. (New York) is now exclusive sales representative for Woburn Chemical Corp.'s fatty acids and isoline in the New York City area (except Long Island).

•

Reorganization: White-Gardner Co. (Ithaca and New York), manufacturer's representative, is the reorganization of Leon-White Enterprises. The company handles sales of plant derivatives, animal feedstuffs, fine and heavy chemicals.

•

Caustic Forms: Hooker Electrochemical Co. (Niagara Falls) now offers three additional particle sizes of anhydrous caustic soda: fine flake, crystal flake and powdered. These forms are available in both regular and open head drums.

•

Sales Agent: The H. Reisman Corp. (New York City) is now exclusive representative in the New England states for El Dorado Oil Works, manufacturers of coconut oil fatty acids and methyl esters. Reisman will also continue to represent El Dorado in the Mid-Atlantic states and in New York.

Is your plant in the Midwest?

Now you can get Hooker Caustic Soda

F.O.B. Montague, Mich.

In Chicago, this means faster delivery—and savings of $1.42 per delivered ton*

Substantial freight savings on caustic soda are now a reality, nearly everywhere in the Midwest.

The new, lower freight costs are a result of the new $12 million Hooker caustic plant at Montague, Mich., just across the Lake from Chicago.

In Chicago, you can save $1.42* per ton (dry basis) in rail freight, on 50% caustic soda, as a direct result of this new Midwest producing point.

Fast delivery from Chicago stocks

Anywhere in the Chicago area, you can get rapid tank car service on Hooker Caustic Soda. Your order is shipped directly from bulk stocks at Lake-River Terminal, Chicago.

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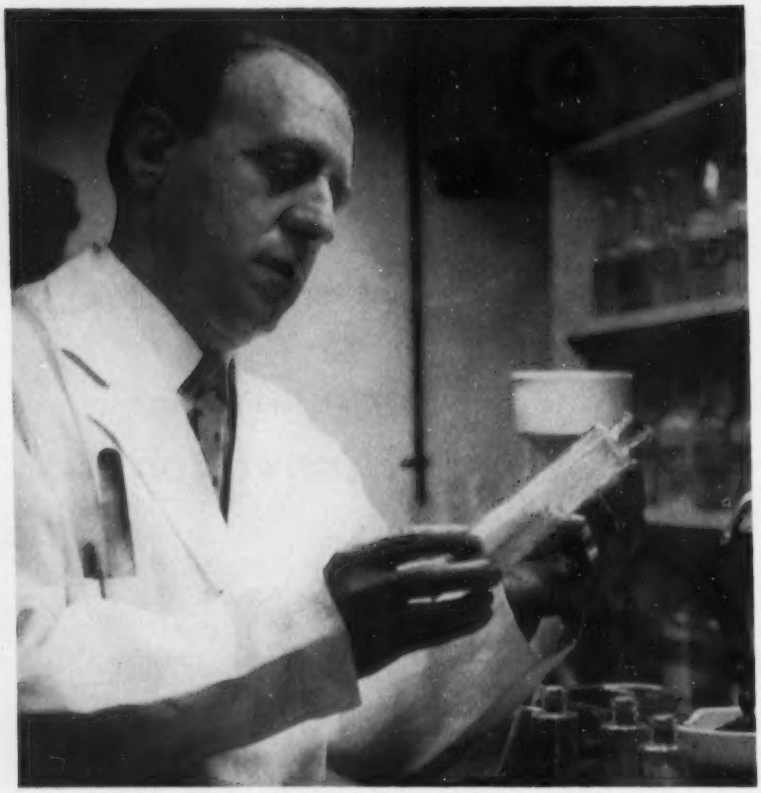

HARMON COLOR'S VESCE: Plastic coats for problem pigments.

New Colors: In from the Spin

Solution dyeing is giving synthetic fiber producers a new crack at their nut-tough coloring problems.

Carbide has just moved its first solution-dyed Dynel into commercial production; other acrylics manufacturers are pushing research on the novel coloring technique.

Working closely with all is a bevy of pigment firms—concentrating on the development of coloring products beamed for a potential broad spectrum of solution-dyed synthetics.

A lot of able people who have struggled long and hard with the problems of dyeing synthetic fibers are eager to call it quits. They haven't been licked. But they see no good reason for trying to dye a fiber when it can be colored better, and easier, by another technique. Their choice: solution dyeing.

Even on rereading, this may sound like nonsense. Yet there's a logical explanation: solution dyeing – also called dope dyeing and spin dyeing – isn't really dyeing,* at all. More accurately, it's a method of blending a pigment and polymer, building color right into the fiber.

First acrylic to take advantage of built-in coloration is Carbide and Carbon Chemicals Co.'s Dynel. Heralded in current promotion as "the first of the new science fibers spun with color," solution-dyed Dynel comes in eight colors, is said to be resistant to washing, fading, perspiration, dry cleaning, and wet and dry crocking. Desirable processing qualities are its reported resistance to fulling, bleaching and carbonizing.

Early Trickle: In its latest Dynel coloring effort, Carbide has taken a page from the cellulose fibers. No newcomer to the acetate fibers, solution dyeing is the moving force behind Tennessee Eastman's Chromspun (21 colors) and Celanese's Celaperms (19 colors), American Viscose's Colorspun (2 colors) and a mounting share of Du Pont's acetate production.

In the viscose field, there is Courtaulds-Alabama's Coloray (13 colors) staple and American Enka's newly introduced solution-dyed filament (12 colors). Courtaulds, which turned out the first trickle of solution-dyed rayon in England more than 15 years ago, now sells (mainly in the United Kingdom) more than 25 million lbs. of the precolored fiber a year.

And the synthetics, spotlighted by Dynel's entry into the solution-dyeing arena, have been represented for several months by a 30-color range of pigmented Saran filament (Dow Chemical).

Late Surge: Fastness is the key to the surging fortunes of solution dyeing. A recent *McCall's* survey of 5,523 women revealed that most of them craved colorfastness above all else in a broad range of textile products. In the heyday of the automatic washer, this result comes as no surprise to the trade. The typical housewife wants to be able to pitch any combination of washable colors into the machine, do them all in the same load.

And by the same token, heavy-duty applications (e.g., convertible tops, awnings, auto seat covers, etc.) are naturals for the color durability of solution-dyed fabrics.

On a cost basis, solution dyeing more than pays its way where full colors are concerned. Cost of stock dyeing Dynel to a fast black, for example, is about 60¢/lb.; solution dyeing to an equivalent black comes to approximately 22¢/lb.* In pastels and lighter shades, this economic balance might easily be upended—assuming that solution dyeing could be applied here at all.

Stealing a March: Led by fiber development chief Edward Rugely and fiber development service head T. A. Feild, Jr., Carbide appears to have stolen a march on its competition. But it hasn't caught them unawares.

Manufacturers of other acrylics (commercial and experimental) are actively researching even if they aren't talking about it. Although it may be some time before a contender to pigmented Dynel appears in the acrylic field, this much is definite: Du

* Surface coloring by chemical reaction or physical attraction.

* These are dyeing costs—not cost of the dyed fiber.

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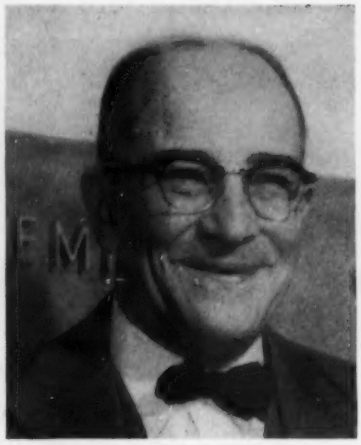
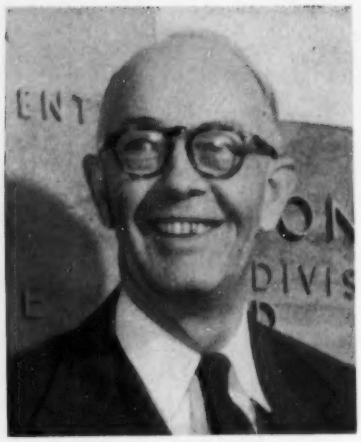




CARBIDE'S RUGELY (left) AND FEILD: For Dynel, a page from cellulosics.

Pont's Orlon, Chemstrand's Acrilan and Cyanamid's X-51 have all been solution-dyed experimentally.

Doing it in production is something quite different. A pigmented synthetic is produced by extruding the polymer solution containing dispersed pigment through the fiber-forming spinneret. The pigment is the nub of the operation; it must be of suitable fastness, properly dispersed and ground to a high degree of fineness.

Since fiber diameters are measured in microns, there isn't much leeway for variation on the last count. Optimum pigment particle size may be one micron or less; large particles seriously weaken the fiber. Color producers are now concentrating on the development of a brood of new products to fill the exacting needs of the various types of fibers.

Spearheading the research effort are Harmon Color (B. F. Goodrich Chemical), Du Pont's Pigment Division, Sherwin-Williams, among pigment producers. Interchemical's RBH Division is in the forefront of dispersers. Add American Cyanamid (still researching), Arnold-Hoffman (producing) and a handful of other firms and you have a pretty fair idea of the over-all pigment picture.

Finding the right pigments would appear to be no serious problem. Despite some trouble with red, all shades have yielded. Included among solution-dyeing pigments: carbon black; lead chromate yellow; benzidine yellow; phthalocyanine blue and green; and a number of thioindigos (red and violet), azos (red and blue), vats (yellow and orange) and indanthrenes (blue).

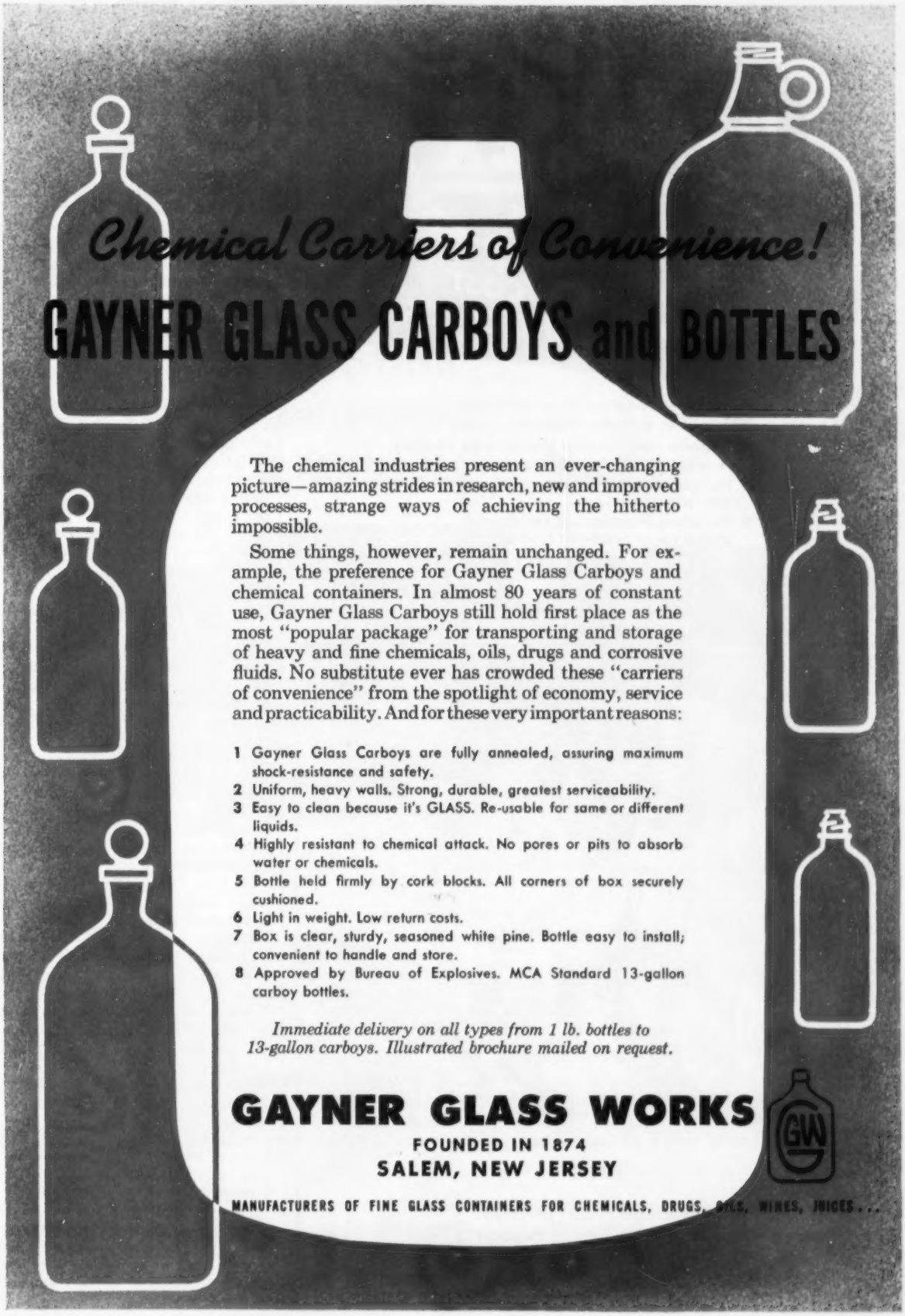
Putting the pigment into the best form for utilization by the fiber maker is causing some headaches. Getting good pigment masterbatches (for dispersing) is at best a long and relatively expensive job by current commercial milling methods. And there's no guarantee that products—which tend to be lumpy and contain plasticizers or softeners—will meet the high requirements of fiber coloring.

Plastic Coat: A new approach to the problem is the work of Harmon technical director Vincent Vesce. Covered by U.S. patent 2,649,382, the new masterbatching technique hinges on the milling of a pigment and a solid plastic with a special liquid dispersion and grinding medium. Result: pigment particles get a coat of plastic. The idea is to use a plastic that is chemically the same as the fiber to be colored.

Precoated with the fiber material, the pigment can be readily incorporated into the fiber spinning mixture. Vesce's method, which produces dry, free-flowing powders, is applicable to acrylic as well as to cellulosic fibers. He claims that pigment powders produced by the new method are well within size limits dictated by fiber diameter; and they reportedly can't clog delicate spinnerets.

Vesce's work, aimed at the elimination of a major solution dyeing drawback, could go a long way toward putting the method on a practical technological footing. If it catches on, it should be a strong growth factor in the development of the novel fiber coloring technique.

Solution dyeing, despite its appeals, is not a panacea. It has its drawbacks, increases inventory problems in the mill, reduces flexibility of fabric manufacture. But all things considered it's here to stay—and it's setting a fast pace for both fiber and pigment researchers.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Incentives Shaping Up

In line with Administration efforts to encourage industrial research, several proposed incentive spurring measures (*CW, Jan. 23*) have taken shape in House Ways and Means Committee sessions.

• Last week, the committee—headed by crusty Dan Reed (R., N.Y.)—gave its o.k. to a proposal that would allow all companies to write off research as a business expense. Heretofore, many firms were forced to classify research expenditures as capital investments.

• Also approved was a measure for liberalizing amortization of plant expansion. It would permit a company to write off two-thirds of any capital expansion (since Jan. 1) during the first half of the estimated life of the new facilities.

Not nearly so subject to politicking as Administration efforts to eliminate double taxation (labeled a "gift to the rich" by Democrats) on corporate profits, the research measures have a better chance for survival in a Congressional election year.

•

Heat Resistance Guide: Results of National Bureau of Standards recent symposium on high-temperature organic materials lay the groundwork for the development of new heat resistant compounds.

Three questions comprised the theme of the sessions:

(1) What chemical elements or groups are likely to contribute to the thermal stability of organic molecules?

(2) What properties may be expected from various combinations of these structural units?

(3) How can such materials be obtained, and how can their properties be determined?

Replies provided by industrial, government, and academic scientists:

• Partially or completely conjugated chains of alternating single and double or triple bonds are most likely to fulfill requirements for liquids or polymers stable up to about 500 C.

• Elements forming the chain should be carbon, silicon, nitrogen, phosphorus and possibly several others.

• Among aliphatic materials, only fluorocarbons currently appear suitable for applications in the 400-500 C range.

Some divergence of opinion on all of the above points was evident. But on one count, all participants were agreed: much more basic research is needed in the field of high-temperature materials.

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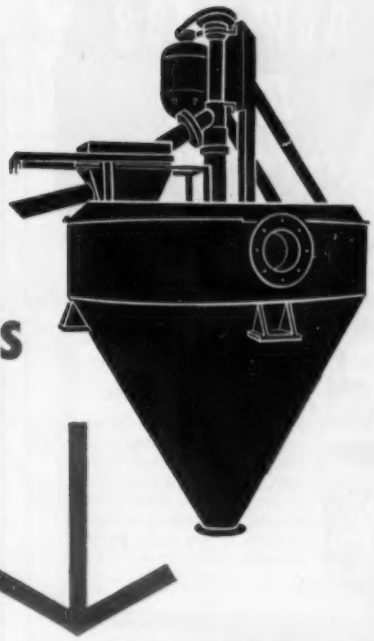

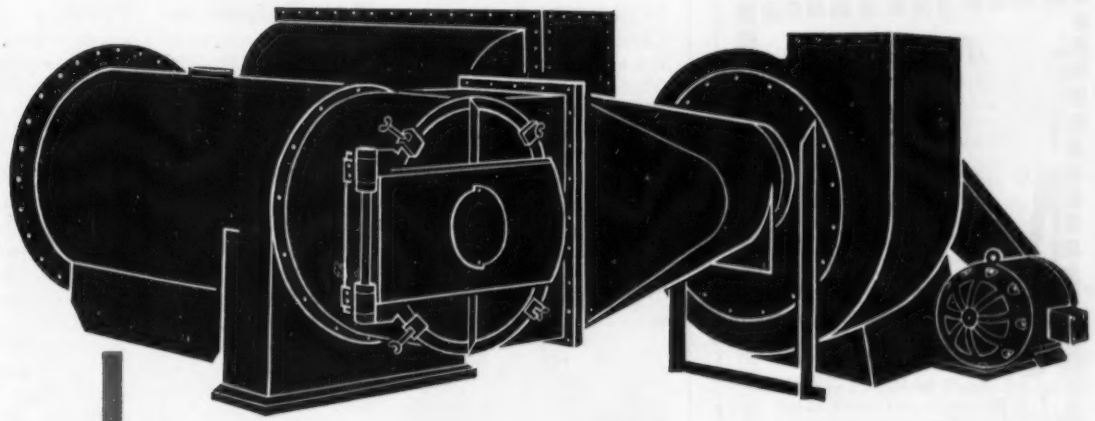

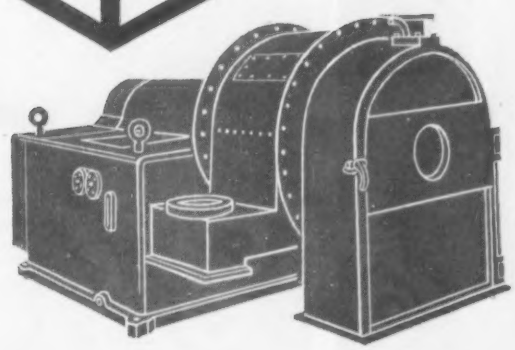

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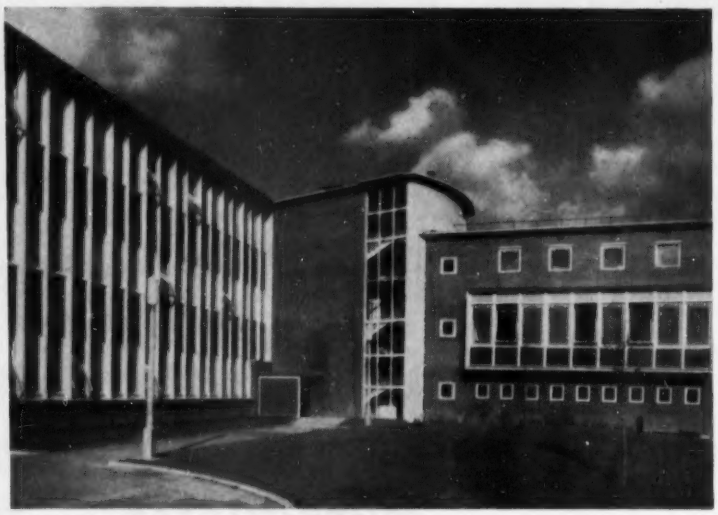

Built for Flexibility

DESIGNED to house Imperial Chemical Industries' plastics probes, the sparkling new research center pictured above is a strong advertisement for its company's wares. Opened recently in Welwyn Garden City (Herefordshire, England), the structure's interior is largely a study in plastics.

Striving for flexibility, the architect chose a kind of interior prefabrication based on plastic panels. Proportioned on a four-foot nodule, the panels clip into place and are held by only two, or at most four, threaded bolts. Any panel may be easily removed by one man (*below, left*) in a matter of minutes.

Even the utility pipes are easily removed, may be set up in a variety of possible locations. All pipes are fed from lines along the periphery walls, are supported by movable service galleries (*below, right*) running through the laboratories. Drip wastes are fabricated from polyethylene, while drainage pipes are of rigid polyvinyl chloride.

The $840,000 facilities comprise Britain's largest center for plastics research.

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AS COPOLYMERS:

The acrylates copolymerize readily with other active monomers. Ethyl acrylate, with vinyl chlorethyl ether, yields a vulcanizable plastic that has excellent heat and oil resistance. Copopolymers of acrylates with other monomers, such as styrene, vinylidine chloride, acrylonitrile, and methacrylates are used in finishing textiles and leather, in the production of transparent sheeting, molding and laminating resins, and in synthetic fibers.

IN ORGANIC SYNTHESES:

Acrylates are used in the synthesis of pharmaceuticals, odorants, and lubricants. They combine with alcohols, mercaptans, and amines. With dienes, such as butadiene, they form cyclic esters. Chlorine, bromine, and halogen acids add readily to provide active groups for further syntheses.

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for you to begin using acrylates. Call or write the nearest Carbide office for samples or additional information. If you are interested in acrylic esters of other alcohols, we shall be glad to discuss your requirements.

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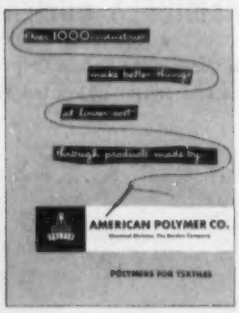

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RESEARCH . . . . . .

Hopefuls: Three new, structurally modified fatty acids are the offering by Emery Industries (Cincinnati, O.). The compounds are said to possess the color and heat stability associated with high-quality stearic and palmitic acids, yet have the consistency and solubility characteristics of distilled tallow acids. "These differences," Emery states, "are . . . significant since two of the acids are practically saturated C_{16} and C_{18} monocarboxylic acids." Potential uses: in lubricating greases, cosmetics, textile softeners, etc.

• Also making their debut are 11 new fine chemicals from Distillation Products Industries (Eastman Kodak Co.), Rochester, N.Y. Sampling: 8-amino-6-methoxyquinoline; *p*-n-amylphenol; α-bromo-*m*-nitrotoluene; 2,3-dichloropropene; 2,5 - dimethoxytoluene; 2-methoxyethyl acrylate.

•

Debarking Deal: Chemical methods of peeling pulpwood are now considerably beyond the visionary stage. Seventeen firms in the pulp and paper industry have just purchased (for public use) a patented process (*CW, Jan. 23*) for debarking live trees by the use of sodium arsenite. Louis Paquet of Howard Smith Paper Mills Ltd. negotiated purchase of the Canadian patent from its owner, Alexander White (Mimico, Ont.).

•

Putting on Pressure: Ground was broken last week for Pan American Refining Corp.'s new Texas City high-pressure research laboratory for studies in petroleum and petrochemical fields.

Pressures up to 10,000 psi. (possibly higher) will be harnessed in the laboratory's eight reaction vessels. Each vessel will be positioned in a cell formed by three one-foot-thick reinforced concrete walls and a fourth weaker "blowout" wall. High-pressure equipment will be operated by remote control.

•

Rodent Bane: Trinitrobenzene and its arylamine complexes are giving U.S. Fish and Wildlife researchers promising new leads in their rodenticide development program. In studies sponsored by the Office of the Quartermaster General, the pesticide probers found that rodent attacks on paper board were significantly decreased with the nitrated aromatics.

•

Metal Note: Bureau of Standards chemists report a new technique for the preparation of refractory molybdenum. Key: electrolysis of solution of potassium hexachloromolybdate in molten alkali halides.

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FISCHER AND NOWAK: They found the universal solvent.

Shortcut to Purity

There's a well-worked bit of advice to young industrial engineers that runs like this: When looking for the most efficient way of performing a given operation, find the laziest man in the plant and put him on the job. In time, he'll find the quickest way of doing it and the one that calls for expenditure of the least amount of effort.

If this formula is correct, then Nuodex Researchers Milton Nowak and Alfred Fischer can lay claim to being the laziest men ever to make cobalt naphthenate. They developed a process for making it that bypasses several steps of conventional process.

PLANT MANAGER KILCULLEN: He put it in a package.

CHARGING COBALT: Avoiding a problem eliminates steps.

And though cobalt naphthenate is probably the biggest single application for their method, actually the same technique can be applied to a number of similar products.* First word of the new process came about three years ago when Nuodex quietly started informing the trade that it had a cobalt naphthenate free of water-soluble impurities. An additional clue came in 1952 when the firm was granted a patent (U.S.P. 2,584,041) on its DMR (direct metal reaction) process. But only last week did it reveal the whole story.

Process Paths: Normally, when you want to get cobalt naphthenate, you use the double decomposition process. In the process, metallic cobalt is first converted to cobalt sulfate, then reacted with the sodium salt of naphthenic acid. The process goes quickly, gives good yields of cobalt naphthenate, the desired product, and

*It can be used, for instance, to make manganese, lead, zinc, cadmium, zirconium, bismuth, nickel, or tin tallates or other compounds of weak organic acids.

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Picco Coal Tar Aromatics are used extensively in the Paint and Varnish industry where good solvency and controlled evaporation rate are required. They are especially useful for alkyds and other synthetic resins. Large volumes are used in automotive finishes and in various industrial paint applications. These Coal Tar Aromatics also find use in solvents for rubber and rubber cements, dyes, and degreasing applications.

COAL TAR HEAVY NAPHTHAS

These are semi-refined, selected coal tar fractions having excellent solvency for applications ranging from wire enamels to roof coating compounds. Pitches, tars, and asphalts can be cutback with these Coal Tar Heavy Naphthas. Other uses include printing inks and sludge solvents.

SOLVENT OILS

The Picco Solvent Oils include Shingle Stain Oils, neutral extenders for creosote, holder oils for the gas industry, and thinners for bituminous paints. Their moderate solvency and high flash point permit their use in numerous other applications.

HEAVY OILS

The characteristics of the Picco Heavy Oils make them ideal for weed killing oils, sludge solvents, and tar cutbacks. They are also useful in the manufacture of insecticides and disinfectants. Dipolymer Oil is an excellent processing agent in the rubber reclaiming and synthetic rubber industries.

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This complete series of petroleum fractions enables many manufacturers to select suitable substitutes for the common coal tar solvents at a substantial savings. Applications include paints, varnishes, lacquers, printing inks, rubber compounds, and insecticides.

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The Hisolv Heavy Naphthas contain methyl naphthelenes and have good solvency for insecticides such as DDT, 2,4-D esters, and chlorinated camphene. They are also very useful as vehicles for wood preservatives. Their high flash points and low cost are also attractive features.

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PRODUCTION. . . . .

large quantities of sodium sulfate. Since the latter is water-soluble, it can be washed out, and the naphthenate can be dissolved in mineral spirits.

But the cobalt naphthenate forms as a pasty mass and it's virtually impossible to wash out all of the sodium sulfate. About 20 years ago, Nuodex found this difficulty could be largely overcome by carrying out the reaction in a two-phase system of mineral spirits and water. As it was formed, the naphthenate would migrate to the upper layer of solvent and the sulfate would go to the lower water layer. The upper layer could be washed, dried and the concentration of cobalt could be adjusted.

This process worked fine for Nuodex, was, in fact, its method of choice for many years. But Milton Nowak, chief chemist, and Alfred Fischer, project leader, felt there was still room for improvement; for even with the two-phase process, the product carried traces of sodium sulfate that couldn't be removed.

They decided the best way to avoid the difficulty of removing the sulfate was to prevent it from forming in the first place. That sounded like a big order, but they found that powdered cobalt would react directly with naphthenic acid at relatively low temperatures in the presence of water with air.

They turned the process over to R. A. Allen, chief process engineer, and John Kilcullen, pilot plant manager (and now manager of the Elizabeth, N. J., plant). They realized better than anyone that the process had been proved on a lab scale only, that sealing it up might prove no easy trick. For what the researchers had done was to find a way of digesting metals directly in weak organic solvents. As Kilcullen puts it today, "I was afraid of what would happen to the reactor. It was like looking for the container for the universal solvent."

After intensive pilot-planting, it was found that Type 316 stainless steel would stand up under the conditions, an unusual 3,000 gal. reactor was designed. Here's how it works: A solution of naphthenic acid is charged to the reactor, water is added, and then powdered cobalt is introduced. The temperature is raised to 190 F and air is bubbled through for 12 hours. Conversion is of the order of 95%. Water is driven off under vacuum, leaving a cobalt naphthenate free of any water-soluble impurities.

The bonus from the process is that all intermediate steps (and the consequent need for space and costly equipment) are eliminated.

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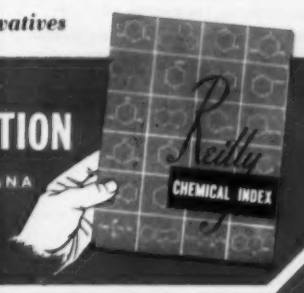

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EXHIBIT: Torn between a desire to see . . .

Time Out for Maintenance

Maintenance is a year-round worry for chemical executives. And it's bothersome, costly, time-consuming. A representative group of executives spent four full days—talking, listening and thinking about maintenance problems in Chicago last fortnight at the Plant Maintenance & Engineering Conference in the Conrad Hilton hotel and at the concurrent Plant Maintenance & Engineering Show in the International Amphitheater.

As in previous years, most of the chemical men present found that even four full days weren't enough to do justice to the question. They were torn between spending more time at the exhibition to witness the latest tools and techniques and attending the conferences to learn about new policies and to exchange ideas at the various panel sessions. And more than one registrant wished he could be two places at the same time to attend

CONFERENCE: . . . and a desire to listen and speak.

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REFRACTIVE INDEX, 25°C.		1.493	1.484	1.480	1.477	1.4778
HARDNESS, ROCKWELL R (ASTM D 785-44T)		124	116	-152	112	88
HEAT DISTORTION TEMPERATURE, 264 LB./SQ. IN. (ASTM D 648-45T)	°C.	72	55	<25	54	30
TENSILE STRENGTH (ASTM D 638-44T)	lb./sq. in.	7800	5400	500	3600	2100
ELONGATION AT BREAK (ASTM D 638-44T)	%	1	25	300	1	175
IMPACT STRENGTH, CHARPY UNNOTCHED	Ft. lb./in.	4.1	4.1	3.4	0.8	1.4
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panel discussions that were going on simultaneously.

Unquestionably one of the standout discussions was that on the pros and cons of preventive maintenance. Speaking for those who favor preventive (rather than "breakdown") programs was O. W. Gravely, works engineer for Union Carbide's Electro Metallurgical Co.

Gravely described his experiences at the Niagara Falls plant, outlined procedures and filled in some details for both types of program. He admitted that where experience has proved that certain emergency repairs do not curtail production or increase over-all maintenance costs, it may be smart to handle them as the actual need arises. "However," he added, "this can only be done economically if a substantial part of the total repair labor requirements are planned. Otherwise, since it is obvious that actual operations cannot be predicted, to meet extreme conditions a higher-than-needed labor force must be maintained; or excessive overtime premiums and lower labor efficiency will inevitably result to meet the peaks in demand."

He offered as a case in point a coke-drying system. Operating under a program of "breakdown repairs" the system had an output of 65,000 tons/year, entailed a repair bill of $2,000/month. After it was placed under a preventive maintenance program, production climbed to approximately 100,000 tons/year, maintenance costs were slashed to $1,600/month.

This, said Gravely, was an exceptional case, but it indicated the results that could be obtained with adequate planning.

Although a substantial percentage of those present sided with Gravely, he ran into some vocal opposition. Said one who disagreed with him: "Preventive maintenance programs are usually unrealistic, impractical and unnecessary."

One of the other highlights of the conference was a discussion on occupational dermatitis. Louis Schwartz (M.D.) from Washington, D.C., pointed out that dermatitis cases constitute about two-thirds of all occupational disease cases that go before compensation boards. The U.S. Public Health Service estimated that in 1942 occupational dermatitis entailed a loss of more than $100 million. Schwartz figures that the loss today has increased considerably.

He outlined the causes, cures and means of preventing dermatitis, indicated that "good housekeeping" in the plant plays a significant role in keeping the incidence rate down.

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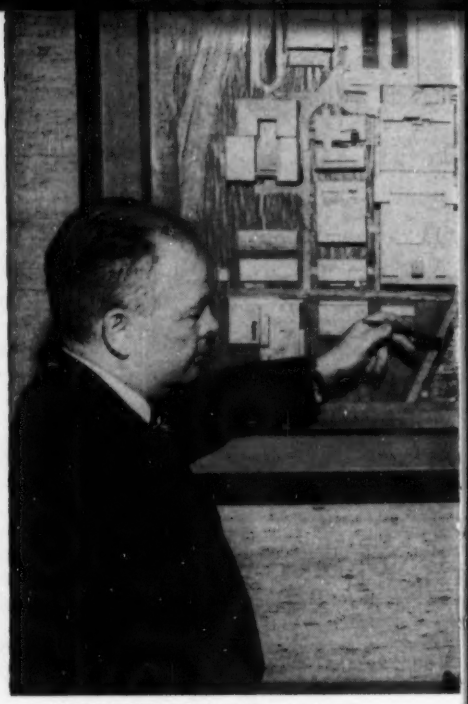

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PRODUCTION. . . . .

Unfinished Business

Of vital concern to all chemical production men in the area is the current Congressional hassle concerning future power development in Niagara Falls. Last week (*CW Newsletter, Feb. 6*), Sen. Herbert Lehman (D., N.Y.) and Rep. Franklin Roosevelt, Jr. (D., N.Y.) were ready with a new bill calling for New York State construction, ownership and operation of the proposed project. The next move is up to Congress.

With the United States, New York State and a private utilities group all vying for the right to develop additional Niagara power (*CW, Aug. 1, '53*), the problem is that of a three-sided game of Chinese checkers. The latest Lehman-Roosevelt move, apparently an attempt to whittle down the number of factions, offers Con-

Manpower

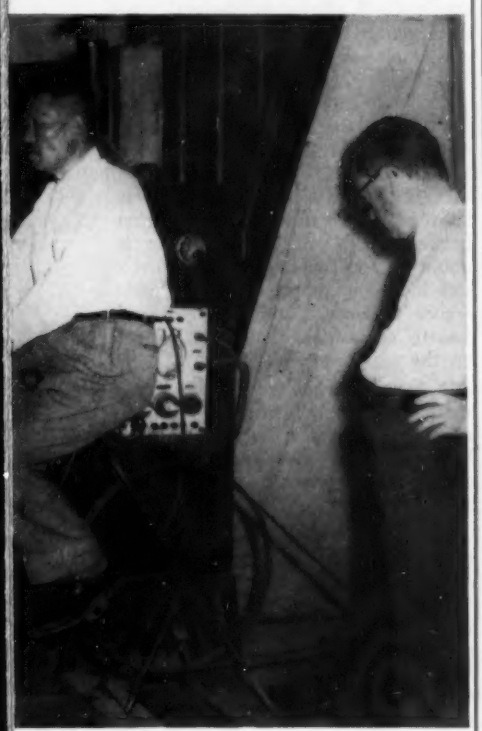
HE'LL NEVER RIVAL Niagara Falls as a source of cheap energy, but the manager of the New Ilhon Drug Co. in Sosa (near Inchon), Korea, is actually powering a compressor hooked up to his bicycle. Watching him putting the improvised power unit through its paces is a team of United Nations medical

gress a less widely separated set of alternatives from which to choose.

Congressional Gambit: A rider tacked onto the 1950 boundary waters treaty with Canada tossed the matter into the collective Congressional lap, assigned the right to appoint the power development agency to Congress instead of to the Federal Power Commission. The issue lay fallow until 1953; then, seeded by the introduction of the Capehart-Martin-Miller bill, other proposals began to blossom:

• Rep. George A. Dondero (R., Mich.) offered a companion bill to the Capehart-Martin-Miller measure for private development. It was the Dondero bill that finally passed the House last July, but lost out to year-end Congressional adjournment in its move through the Senate.

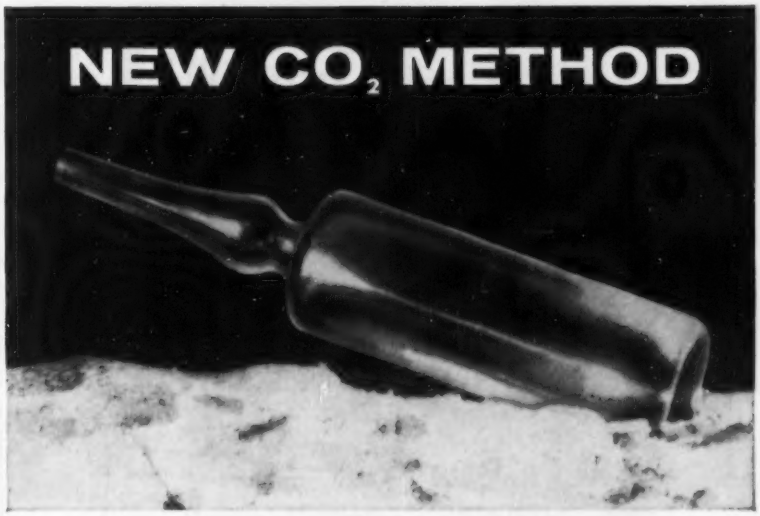
Currently, the bill is in Senate com-



Horsepowers

experts new touring the country to plan ways of assisting the Korean government in its efforts to improve health standards and medical education. In their visits, they found such improvisations were not uncommon in Korea where the fighting took a heavy toll of power installations.

NEW CO_2 METHOD



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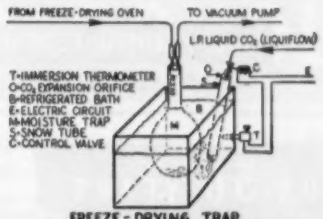

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PRODUCTION. . . . .

mittee. Sen. Edward Martin (R., Penn.), chairman of the Senate Public Works Committee and one of the sponsors of the original measure for private development, will soon hold hearings on the Dondero bill in hopes of getting it passed through committee and into the Senate for final approval.

• The bill for New York State development, sponsored by Sen. Irving Ives (R., N.Y.) and Rep. Frank Becker (R., N.Y.), was also introduced last year but was defeated in House committee by the Dondero measure. It is now in Senate committee vying with both the Dondero and the Lehman-Roosevelt bills. Should it be reported out to the Senate for final approval, it would then have to return once again to the House for reconsideration.

• Senator Lehman and Representative Roosevelt (N.Y.) proposed still another bill advocating federal construction (by the Corp of Engineers) and inclusion of the controversial "preference" clause.* This measure was also defeated in House committee but is still active in Senate committee.

This same team, last week, readied its new bill shaped along the lines of the state measure. That this latest move will effect any conciliation between state and federal forces is doubtful, for Lehman and Roosevelt still insist on retention of the "preference" clause. Both House and Senate committees have yet to act on the measure.

• Sen. Francis Case (R., S.D.) pursued another tack, offered a bill to repeal the treaty rider and toss the issue back to the Federal Power Commission. The Case bill, too, is still in Senate committee.

Pushing Private Power: Whatever the outcome of the bills in Congress, at least one company made it clear where it stood last fortnight when General Electric unreservedly plumped for private development of Niagara power, urged support for the Capehart-Miller bill which provides for this approach.

Chemical production men in Niagara Falls, eager to get the additional power development under way, have sided for the most part with the group of private utilities (*CW, Aug. 1, '53*). But regardless of their own feelings, they realize that some move should be made soon—before more time and more tentative chemical residents slip away from the Falls to less green but more accessible pastures.

* This clause would insure municipalities and rural co-ops of first call and reduced rates on power distribution.

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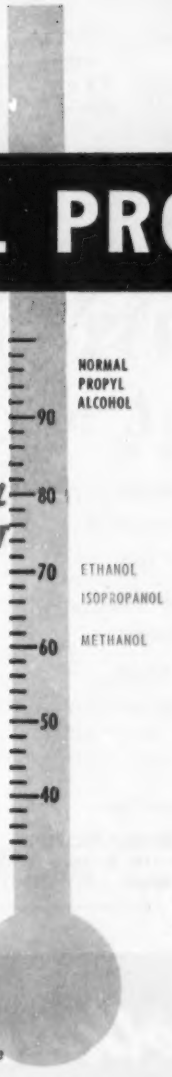

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Color (APHA max.)	5
Solubility in 85% H_2SO_4	Complete
Solubility in Water	Complete
Water Content, max.	0.2% by wt.
Non-volatile Material (max.)	0.001 gms. /100 ml Sample
Acidity and Alkalinity	Neither acid to methyl orange nor alkaline to phenolphthalein

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Mr. G. K. Oxley making a visual comparison of mass tone and relative opacity in the Acme laboratories.

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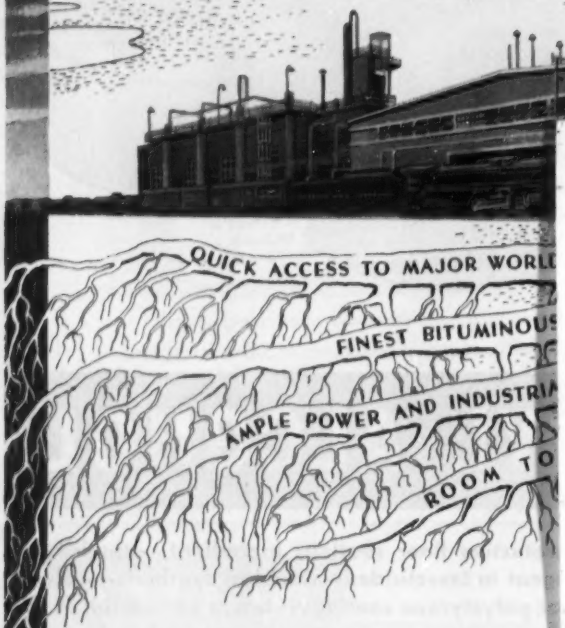

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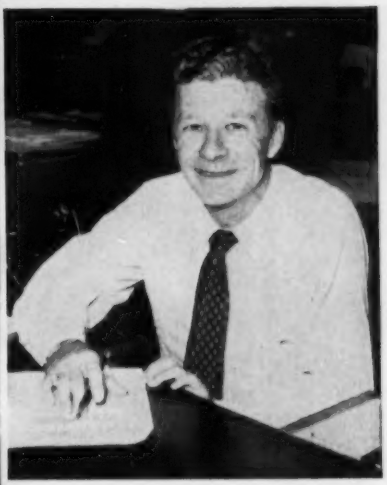

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W. C. HARMON, JR. is Divisional Manager of Purchases for Calco. He started with the company in production and also has had over fifteen years of experience in sales. This background has helped him to enlarge the perspective of the purchasing department.

D. E. REIFSNEIDER, Calco Purchasing Agent, has made purchasing his career ever since he majored in the field at college. For many years he has been one of the pioneers in developing the purchasing function as an important aid to engineering and production.

FRANK HACKETT, British born and educated, is Assistant Purchasing Agent. Specializing in the purchasing of chemical processing equipment, he has a knack for spotting new designs and improvements that pay off in greater production efficiency.

IT'S JUST GOOD BUSINESS, the Calco Purchasing Department believes, to take advantage of suppliers' specialized knowledge and services. And the purchasing agents make a point of helping equipment salesmen see the right people in the engineering department. Here Pfaudler representative S. A. Smith (left) discusses equipment specifications with Calco's R. L. Cassell (center), Chief Plant Engineer, and W. J. Kruppa, Chief Chemical Engineer.

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Everything but the Smell

New entries in the odorless paint field underline the rising importance of "easy on the nose" paints.

Odorless paints have been smaller paint-maker's answer to water-based paints. But chances are they'll eventually take over wherever consumers object to painty smells, despite . . .

Cost of raw materials, and formulation problems—the chief drawbacks. Already alkyd reduction techniques have simplified paint manufacture.

When the big paint factors start showing interest in a paint long deemed a smaller formulator's specialty, it's a sure sign the product has plenty of sales merit. Now, with some of the top-volume firms coming out with odorless paints—Sears, Roebuck offers a line this year for the first time, and Sherwin-Williams will unwrap one soon—it appears that the scent-free finishes are coming into their own.

A strictly postwar development, the odorless paints have been, in the past couple of years, the smaller firm's answer to the sharp competition of the water-based paints. But with the increasing interest shown, chances are that their life merely as a countermeasure may be short.

Because when one firm—Devoe & Raynolds—can report that in the less-than-a-year since it put out its own odorless flat, flat finish sales have doubled, it's sure to perk ears. Although D&R's case is probably not unique, the firm does offer a latex paint, and apparently felt it worthwhile to round out its line.

But Then . . .: Enthusiasm for the odorless paints isn't by any means universal. At least one major vehicle supplier describes the business as "frankly a flop," estimates that scentless paint sales probably total less than 5% of their potential. His major point is that although such coatings have been offered for half a dozen years, the paints are for the most part only flat wall finishes.

Precise figures are unobtainable on just how the paints are doing. But several of the petroleum firms supplying the thinners put sales on the good side of 5% of the possible interior market. Estimated consumption of thinners is from 5 to 15 million gal./year.

They have a prime interest in the success of the odorless paints, for equipment to refine them from the alkylation products of aviation gasoline plants is considerable. Currently supplying the thinners are Atlantic Refining, American Mineral Spirits Co. (which sells Phillips products in the East, Richfield Oil of Calif. products on the Pacific Coast), Sinclair, Shell, and Socony-Vacuum. Phillips is top supplier; position of most of the others is pretty even. Standard of Calif. is getting into production, and several smaller Texas refineries are said to be making thinners, too.

Pungency Debate: Even among paint makers, there's disagreement on just what are to be classed as odorless paints. Some firms declare their products have no odor—in the can or on the wall; others say scent-free paints just can't be made. And there is no doubt that there's a varying degree of odorlessness among the paints offered as "smell-proof."

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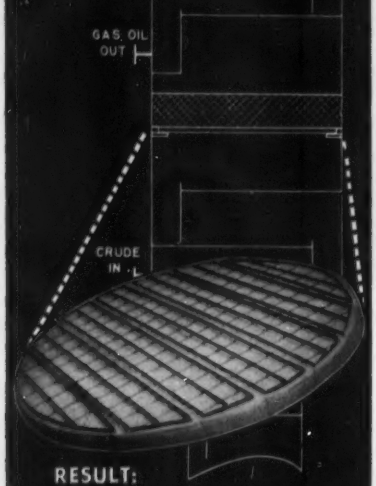

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Perhaps the most accurate terms are "low odor," or "free of paint-type odor."

There are, too, considerable differences in the completeness of the lines offered. Flat wall finishes predominate, although at least one company offers a full line of semiglosses and enamels, and several sell the semi's in addition to the flats.

All this variation exists mainly because of the problems in formulating satisfactory odorless finishes. Add to formulation difficulties the problems of higher cost. Although in recent months such developments as the Shell-promoted alkyd reduction technique have simplified formulation, problems still abound. Until all the formulation posers are solved, odorless paints won't be able to realize their full potentialities.

Thinner Beginning: The solvents that permit manufacture of odorless paints have been available, in varying amounts, since about 1944. The higher boiling fractions of avgas, they can be added to auto fuels to reduce need for TEL. They are, roughly, 1½-2 times the price of conventional mineral spirits.

Though they are scarcely more odorous than water, they are hard to keep clear and odorless, fall far short of common solvents in ability to thin vehicles. Apparently oleoresinous vehicles are more compatible with these thinners, since they were in the first scent-free paints offered, and are in the high-gloss, odorless paints now offered.

Alkyd resins, desirable for a number of characteristics, have been hard to adapt to the thinners. Paint firms that make their own alkyds, and suppliers like American Cyanamid, Reichhold, General Electric, U. S. Industrial Chemicals and others, are exceedingly close-mouthed about how they make resins.

Addition of a few per cent of glyceryl mono-oleate has proved to be an approach to the alkyd solubility problem. It's a twist introduced by Shell late last year (*CW Marketletter, Oct. 3, '53*), and though it's a long step in the right direction, it's admittedly far from the complete answer.*

Other phases of formulation haven't been quite so tricky. Pigmentation has apparently proved to be no problem. About driers, there is some debate. Some formulators prefer to stick with the naphthenate driers they have long used, others feel the more expensive octoates are of aid in reducing odor. Tall-oil driers are also deemed comparatively low on odor and they are cheaper than the octoates.

Even when a manufacturer has made what he thinks is a good paint, he sometimes ends up with a product that isn't stable in storage. As the temperature drops, vehicles separate, and simple stirring won't mix them back in again.

Buyer Likes: The reward for careful

* As they're commercially offered, GMO's are only 35-50% pure glyceryl mono-oleate. Work is being done to determine just what the active portion of the mixture is. Carlisle Chemical and Glyco Products are among the firms now selling GMO (by no means a new product) to the paint trade.

Canful of Jelly

A slick twist in paint formulation is apparent in a coating made by Atlas Powder's Industrial Finishes Div. (Stamford, Conn.) It results in a paint that needn't be laboriously stirred by the user.

As Atlas works it, the paint is thoroughly mixed at the factory. After it has been put in cans and stored, it gels—so that pigments and other components can't settle to the bottom of the pail. A few stirs breaks the gel and restores the paint to liquid form—and so it stays for several hours before regelling in the tray or can.

Zaflo, as the thixotropic paint is called, is currently available only in flat interior finishes. Atlas, which doesn't make any paints for home consumption, hasn't called much attention to its development, although Zaflo has been on the market for about a year and a half, and has been used in a number of commercial establishments.

The thixotropic effect is achieved by inclusion of a gelling alkyd resin —the resin is commonly employed, Atlas says, but it's the first use where the gelling characteristic has been featured. Apparently, the gel paint can't be patented.

Drying time, adherence, hardness, and other qualities of the paint are said to be no different from those of other paints. It's formulated with odorless solvents, since "that's the trend."

So far, the company hasn't indicated that it will get into manufacture of home finishes that gel. (The technique hasn't been perfected for gloss paints yet.) At any rate, the gelled finishes harbor some intriguing sales potentialities.

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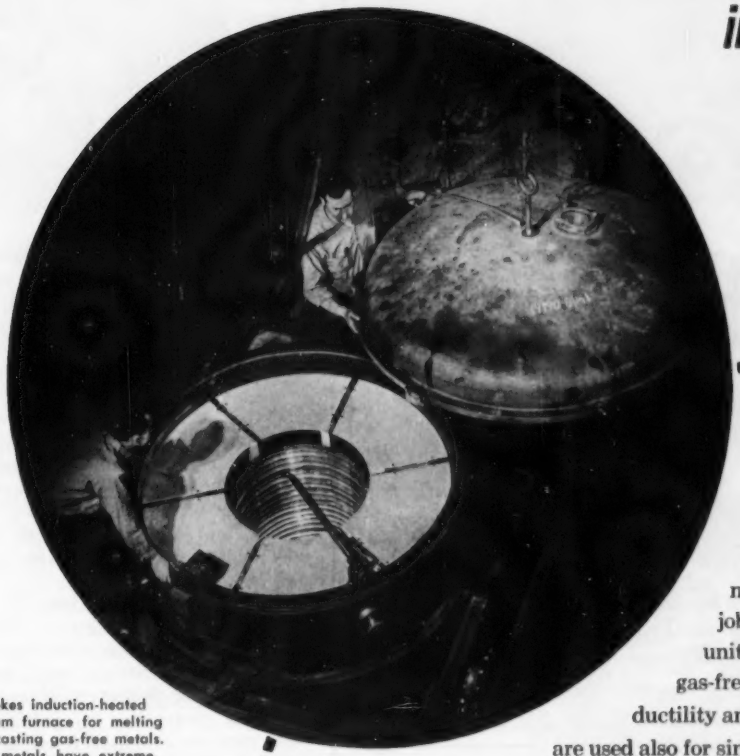

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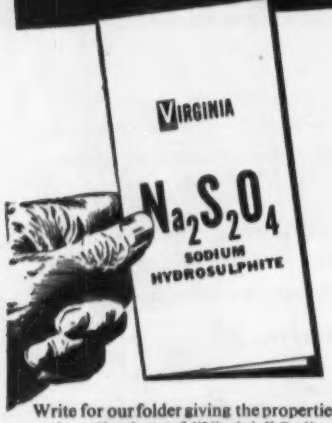

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paint formulation, though, is an extremely salable product. The paints permit redecorating with less regard to the season, since windows needn't be flung open to "air out the place." The odorless paints can be used in hospitals where patients might find ordinary paint odors nauseous, or in grocery stores, where foods might absorb odors. They're applicable wherever a consumer would object to the conventional thinner smell.

Too, they have the good adherence, scrubability, and familiarity of oil-based products. There are also the talking points that makers of nearly every sort of paint claim—ease of application, superior finish, superior durability, and the like.

Right now, with do-it-yourself trends, odorless paints are up against one hump—it is undeniably easier to clean rubber-based paints than oil paints out of brushes. This is in spite of the great strides paint-brush cleaner manufacturers have made in the past few years.

One result of this has been the prediction by many paint makers that the big future for odorless paints lies with the painting contractor, who's not at all deterred by cleanup problems. Professionals prefer the oil paints, and when customers demand freedom from fumes, odorless oil paints will likely get the call.

At this time, paints are still somewhat subject to regional preferences. The East favors the odorless paints; the Pacific Coast and the Midwest are somewhat less vocal in their demands for them.

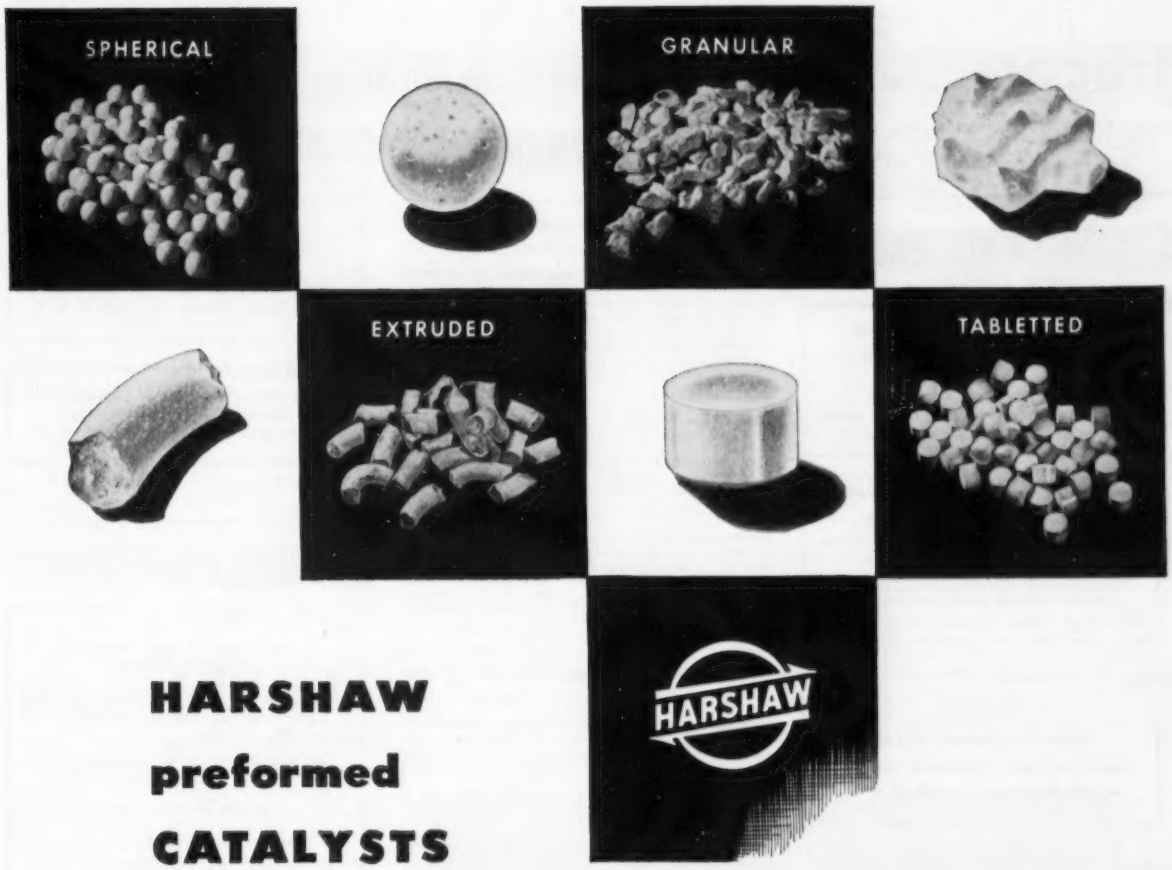
This could be a decisive year for the odorless paints. They'll get stiff competition from latex paints, from polyvinyl acetate paints, from acrylic paints. How they'll stack up after this year is still uncertain, but a lot of paint companies are betting they'll do all right.

Profits in Rotting

With a $250,000 plant being whipped into shape for production this spring, Chicago joins the cities where municipal wastes are being turned into commercial fertilizers. Cincinnati, too, hopes to be in business shortly.

Stockyards wastes are the raw materials slated for conversion by the Chicago Stockyards Composting Co. The firm has been testing its procedures four years, and figures that the animal material formerly sold at low cost to florists can be converted into a much more profitable product.

The new plant has also made test runs with garbage from a Chicago



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Biochemical Director, Ph.D. to take charge of laboratory group concerned with biochemical aspect of microorganisms. Experience in similar capacity desirable. Company is nationally known in the food industry. Please send complete resume and photo if available. P 1669, Chemical Week.

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Manufacturers' Agent, presently covering Missouri, Iowa, Kansas, Nebraska, Oklahoma and northern Texas, desires additional chemical lines. Interested in either basic materials or packaged goods. RA 1511, Chemical Week.

BUSINESS OPPORTUNITIES

Established chemical distributor with sales organization and warehouse in Chicago is interested in distributing warehousing well-known lines for industrial trade in this area. BO 1625, Chemical Week.

We are seeking a Chemical Mfg. Comp. in the Industrial, Agricultural or Specialty Field. With Gross Volume of $500,000 to $5,000,000.00: Our client is triple A, Will act Promptly and Deal Confidentially. Golden Industrial Agency, 20 Vesey St., N.Y. CO-7-3471.

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Filters: Shrivers, Sperry, Sweetland, etc. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

Stainless Steel Tanks—25 gal. to 5,000 gal. capacity—quick delivery. Quaid Fabrications, Inc., 157 W. Oxford St., Phila. 22, Pa. GArfield 6-7630.

Tanks, Aluminum, 500 gal. to 4100 gal. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

Tanks, S/S—30 gal. to 8000 gal. Perry Equip. Corp., 1415 N. 6th St., Phila. 22, Pa.

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Machinery, Chemical and Process. Everything from single item to complete plant. Consolidated Products, Observer Hgway, Hoboken, N.J.

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SALES OPPORTUNITIES

If you are a manufacturer seeking new or added sales outlets—or if you are a manufacturer's agent or chemicals distributor with the capacity, time and energy to take on additional lines—make your interests known in this column of CHEMICAL WEEK. The right agent or jobber teamed up with the saleswise manufacturer makes the right combination for the hard selling days ahead. There's profit for both, which can be initiated through low-cost classified advertising. Write TRACERS Dept., Chemical Week, 330 W. 42nd St., N.Y. 36, N.Y.

hotel, combining it with sludge from the city's sanitary district. Chances are it will stick with the stockyards wastes, however, which it can get cheaper. Current capacity of the plant is small—3,500 tons/year—though it will be upped to 7,000 tons next year; ultimate capacity of 50,000 tons/year is hoped for. That is still considerably under the output of an average fertilizer plant, which can produce 100,000 tons/year.

Odor Goes: CSC's process: The waste is fed by elevator into a pyramid-shaped unit. The manure falls through air about 160 F, continuously agitated and aerated. It's recirculated as often as necessary to get it in the proper form—dustfree and odorless. Final product, a 2-2-2 fertilizer, is packed in 50 lb. bags, sold for $2.90.

Cincinnati's plans haven't as yet advanced this far. The proposal to put in a 25,000 ton/year plant is held up by lack of a suitable site, its backers say.

The interest of these two cities is a result of a growing concern about the inefficient disposal methods currently used for garbage, and the success of other municipalities in composting. Oakland, Calif.'s Compost Corp. of America (Comco) is one of the most well known of the systems (*CW, June 14, '52*). Miami has also tried the composting idea, as has a firm in Bay Shore, Long Island. Milwaukee has been selling its organic sludge as a fertilizer, called Milorganite, but without profit; it's Milwaukee's "least unprofitable" way of disposing of the wastes.

One of the major problems has been producing long-lasting equipment for processing the damp, warm organic matter. Equipment investment must be kept low. There is apparently some difference in the various cities' handling of the wastes: in some cases special bacteria is added to promote rotting; in other cases the bacteria is already present. Whether or not "trained bacteria" must be used, more cities may be looking into composting for garbage disposal.

•

Coating Compound: R. M. Hollingshead Corp. (Camden, N. J.) has come up with a new fingerprint remover called Klad Kote 356. The compound is a petroleum-based corrosion preventive.

•

Booklet: The 916-page November '53 edition of ASTM standards on petroleum products and lubricants has been issued by the American Society for Testing Materials (Philadelphia).

•

No Rubbing: Alsol Products Co. (Newark, N.J.) has a new all-hard wax the company claims requires no rubbing. The firm also says the product can shine a car in 20 minutes. Name: Alsol Auto Wax. Price: $2/half lb.

•

Winner's Feed: A "boom food" for horses, made of Aureomycin-fortified feed, has thrown Australian racing experts into confusion. The special fodder, which contains no stimulants, has apparently made winners out of nine horses, one of which hadn't been able to win in three years.

Despite the joy with which trainers regard the antibiotic treated food, Jockey Club officials, veterinarians and animal nutritionists are uncertain how to regard it. Apparently, though, it's legal.

•

Step One: Just chartered:

- In Fairfax, S. C., Mitchell Insecticide Co., Inc., will make and sell insecticides and fungicides.
- In Chattanooga, Tenn., Dooley Chemical Co. will buy and sell textile chemicals. Also in Chattanooga, Red Wing Exterminating Co. will prepare and sell insecticides and rodenticides.

•

Truck Feed: Truck crops and fruit trees can be nourished with a new spray plant food made by American Potash & Chemical Corp. Named Borospray, the new food possesses a high boron content (as sodium pentaborate), is particularly designed for crops where boron deficiencies exist.

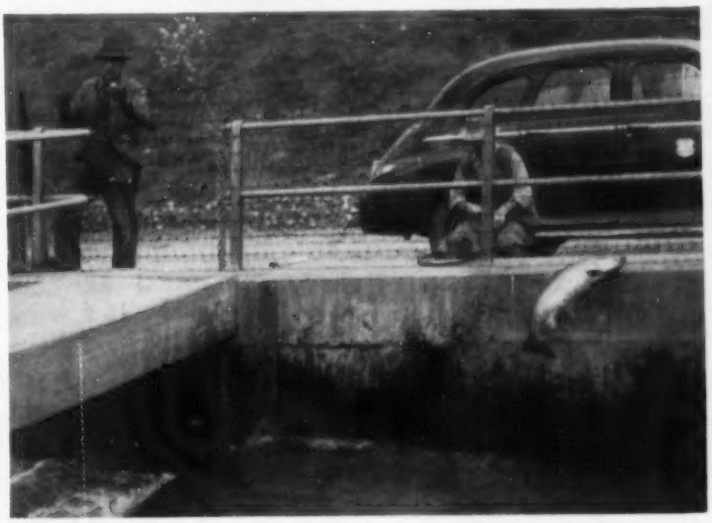
•

Future in Filling: McGuire & Co., Oakland, Calif., specialty maker and contract packager, is putting $100,000 into facilities for filling aerosols. The firm will manufacture cosmetics, paints, and insecticides for private label packaging in aerosol dispensers.

•

New Products: Some of the latest:

- General Electric's Chemical Div.—a polyester resin, AR493. GE says it has chemical and heat resistance superior to that of conventional styrene polyester resins.
- Monsanto Chemical Co.—DI-DP (di-isodecyl phthalate), a new plas-



Channeling Spawning Salmon

KEEPING mating-minded salmon in the proper channels and streams, and away from dam spillways and irrigation ditches, may be easier this coming spring. John L. Hart, director of the Pacific biological station at Nanaimo, British Columbia, thinks he may have found a way to control the fish on their mating runs, keep them out of dangerous or polluted waters.

He's at work isolating an unidentified substance found in the human hand (and also in deer's feet, seal skin). According to Hart, though physical and chemical properties of the substance aren't completely known, it definitely repels fish. Large doses added to a Vancouver Island stream thoroughly discouraged ascending salmon, halted their migration.

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SPECIALTIES. . . . .

ticizer for polyvinyl chloride. Octamethylpyrophosphoramide (OMPA, Schradan), Monsanto's systemic insecticide, has been USDA-registered for control of aphids and mites on cotton.

• Union Bay State Chemical Co., Inc. (Cambridge, Mass.)—a modified vinyl polymer emulsion called U2001 Ubatol, claimed to be infinitely dilutable with water, compatible with all emulsifiable materials commonly used in floor finish compounding.

• Dexter Chemical Corp. (New York)—four dyeing assistants of the nonionic type—Telkanol O, Dextrol Fast Salt M, Rexan O, and Telkanite M.

• Celanese Corp.'s Plastics Div.—a light-stable polyester resin designed for laminates such as awnings, canopies.

• Goodyear Tire & Rubber Co.'s Chemical Div.—a "dry blending" grade of vinyl resin, Pliovic DB80V.

• Carlisle Chemical Works, Inc. (Reading, O.)—an asphalt bonding additive, Pave, said to be heat stable and usable as a wetting agent for asphalt.

• Flintkote Co.'s Industrial Products Div.—a new compounded rubber latex called Syntex L-852. It's claimed to have the unusual characteristic of pressure sensitiveness to another film of the same adhesive but not to uncoated surfaces.

• Detrex Corp. (Detroit)—a group of phosphoric acid-type cleaners (the 800 Series) intended for products that are too large or heavy to be phosphate coated by normal production methods.

• Davison Chemical Corp.—a granulated fertilizer, Davco 12-12-12, which has the economic advantage of a high analyses.

• American Resinous Chemicals Corp. (Peabody, Mass.)—a polyethylene overprint varnish Arcco C 602, designed to protect inked surfaces.

• Homalite Corp. (Wilmington, Del.)—a transparent, scratch and abrasion-resistant sheet material Homalite CR-39, developed from thermosetting resins.

• Turco Products, Inc. (Los Angeles)—a line of seven emulsion cleaners that offer a spray-on method of removing grease and oil from metals and machinery.

•

Brighter Photocopies: Office photocopying in four to five times brighter light is now possible with a paper specially coated with a slow-speed emulsion, according to the DRI-STAT Div. of Peerless Photo Products Inc. (Shoreham, N.Y.). The paper is dubbed DRI-STAT No. 1 (negative).

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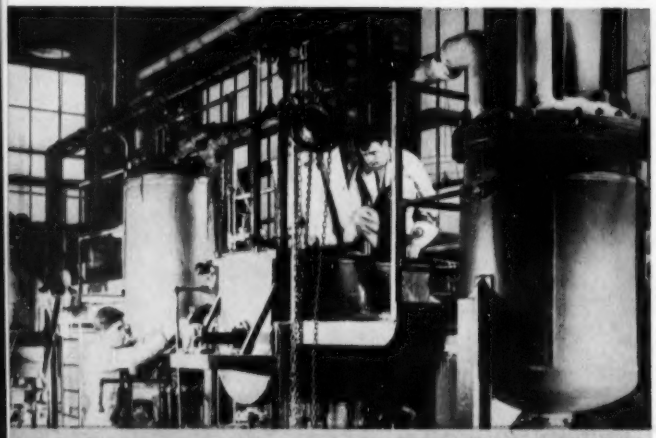

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